

INDEX.

Illustrated articles indicated by *

A.

Abraham, A., Special nickel, chromium and silicon steels, Feb 2, p 6; Feb 9, p 10
 Acetylene:
 Carbide and acetylene in factories, Feb 23, p 3
 Niagara Falls plant, Apr 27, p 9
 Acheson, E. G., Manufacture of graphite, June 8, p 6
 Acheson Graphite Company, Feb 9, p 2
 Adams, C. C., Address of, Mar 23, p 43; Apr 20, p 40
 Adriance inclinable open back press, Mar 30, p 1*
 Advertising:
 Attractive booklet, May 18, p 48
 Bush advertisement, May 11, p 43*; June 29, p 43
 Cuts, Cheap method of making, June 15, p 43*
 Does it pay retailers? May 11, p 42; May 18, p 48
 Effective display, June 8, p 47
 False advertising in Minnesota, Apr 27, p 40
 Florida merchant's idea, May 25, p 48
 Paper by C. M. Doxsee, Feb 16, p 52
 Specimen ads, June 15, p 43
 Suggestions by G. M. Evenson, May 4, p 42
 Trade catcher, Apr 20, p 38*
 Trade winning methods, May 4, p 42; May 11, p 42; May 18, p 48; May 25, p 48; June 8, p 47; June 15, p 43; June 29, p 43
 Unique pamphlet, Jan 19, p 39
 (See also Window display.)
 Advertising prize competition, *The Iron Age*, June 29, p 43
 Africa, Trade in the French colonies, Jan 19, p 5
 Air compressors:
 Compound two-stage, May 25, p 1*
 Fairbanks-Morse gasoline, June 29, p 12*
 Lane & Bodley, Bennett-Corliss, Jan 19, p 10*
 Mammoth, for street railroad motors, June 8, p 1*
 Worthington water motor, Mar 16, p 9*
 Air pump, Manistee, Apr 27, p 1*
 Ajax bolt heading machine, June 29, p 7*
 Alabama Steel & Shipbuilding Company, May 25, p 16*
 Albree, C. B., The use, design and manufacture of iron in ornament, Apr 27, p 3*
 Aldrich, C. W., The upbuilding of retail hardware trading, Feb 16, p 54
 Alloys, Testing, by Joseph Richards, May 11, p 12
 Aluminum:
 Technology of aluminum from a British standpoint, Apr 6, p 15
 Weight of aluminum sheets, Mar 30, p 34
 Aluminum hollow ware, June 1, p 44*
 Amalgamated Association:
 Annual convention, May 18, p 6.
 Scale, May 25, p 13
 American Axe & Tool Company, Feb 2, p 51
 American Bicycle Company, June 29, p 46
 American Brass Company, Mar 9, p 36; Mar 16, p 31
 American Car & Foundry Company, Feb 9, p 20; Mar 30, p 34; June 1, p 15
 American Car Supply Company, May 4, p 30

American Copper Company, Mar 16, p 32
 American Foundrymen's Association, Apr 20, p 1; May 11, p 4, 34; May 18, p 24; May 25, p 19
 American Institute of Mining Engineers, Mar 2, p 3
 American Iron & Steel Works, May 25, p 7
 American management, labor and resources, May 4, p 4
 American Plumbers' Supply & Lead Company, June 8, p 29
 American Radiator Company, Feb 16, p 30
 American Railway Equipment Company, May 25, p 29
 American Screw Company, Jan 12, p 50; Mar 2, p 43
 American Ship Building Company, Mar 23, p 35; Mar 30, p 31; Apr 20, p 28; Apr 27, p 2
 American Smelting & Refining Company, Apr 13, p 30
 American Society of Mechanical Engineers, Apr 20, p 2; May 11, p 20; May 18, p 13
 American Steel & Wire Company, Jan 12, p 40; Jan 19, p 20; Jan 26, p 33; Feb 9, p 31; Feb 16, p 18; Mar 23, p 15; May 4, p 31
 Charter, Jan 19, p 18
 Officers, Mar 23, p 15*
 American Steel Hoop Company, Mar 30, p 31; Apr 13, p 30; Apr 20, p 28; Apr 27, p 32; May 18, p 21
 American Tin Plate Company, Jan 19, p 19; Feb 9, p 29; Feb 16, p 17
 American twist drill grinder, June 1, p 9*
 Annealing malleable cast iron, Silicon in, Feb 16, p 2; Feb 23, p 4; Mar 9, p 16; Mar 23, p 14; Mar 30, p 18
 Anvil, Making solid wrought iron steel, May 11, p 3*
 Arbitration in Illinois, May 4, p 17
 Arcade Mfg. Company, Freeport, Ill., Jan 5, p 47; Jan 19, p 43
 Argentine Republic, Metals and manufactures in, Mar 23, p 7
 Armor plate:
 Bids, June 1, p 19; June 8, p 4; June 15, p 8
 Krupp process, Mar 2, p 17; May 25, p 41
 Nickel steel patents, Feb 9, p 8
 Tests of, Mar 16, p 14; May 25, p 41
 Army contract policy, New, June 29, p 5
 Arsenic, Influence of, on the mechanical properties of steel, Apr 13, p 5
 Asbestos production, May 11, p 18
 Ashland Steel Company, Feb 9, p 16.
 Sup.: Mar 16, p 34
 Asphalt streets, Breslau, Cleaning, Mar 9, p 33
 Atbara bridge and standardization, Mar 23, p 23; Apr 27, p 14
 Australian axe and saw competition, May 25, p 47
 Australian freight rates, Feb 2, p 51
 Automobiles. (See Motor vehicles.)
 Avery Stamping Company, June 1, p 41
 Axe, Marble's safety pocket, Mar 16, p 47*
 Axe and saw competition in Australia, May 25, p 47

B.

Baackes, Frank, Mar 23, p 18*
 Baird engine lathe, June 1, p 12*
 Baker, J. F., Address of, Mar 2, p 47
 Baker, J. W., Consolidation of stove makers, May 18, p 38
 Balance, Hase chemical, Feb 23, p 11

Ball bearing sheave, Wilcox, Feb 2, p 16*
 Bangs, H. C., Address of, Mar 23, p 42
 Banking reform, Apprehension regarding, Mar 30, p 17
 Bankruptcy law, Apr 6, p 9
 Bar iron, Suggested improvements in the manufacture of, May 25, p 14
 Bar iron consolidation, Mar 9, p 15; 16, p 18; Apr 6, p 18; 13, p 30; 20, p 28; 27, p 18; May 4, p 31; June 1, p 16
 Barbour, G. H., Address, June 22, p 50
 Barnes, C. N., Address, Feb 23, p 35
 Bateman Mfg. Company, Jan 19, p 46
 Bathroom fixtures, Meriden Bronze Company, Mar 30, p 47; Apr 20, p 53
 Beaman & Smith, New works, Feb 23, p 6*
 Bearings:
 Dodge capillary, chain and ring oiling, Feb 23, p 11*
 Hyatt roller bearing, Feb 23, p 12
 Philadelphia ring oiling, Feb 9, p 3*
 Spiral journal, Mar 9, p 4*
 Becker-Brainard Milling Machine Company, Feb 2, p 22
 Belgium hardware trade, May 25, p 47
 Belknap, W. R., Passing of the personal in business, June 1, p 39
 Bell, Daisy call bell, May 11, p 46*
 (See also Bicycle bells.)
 Bell Bros. a stock company, Feb 9, p 7
 Bellaire Steel Company, Ohio, Jan 12, p 21, 33; 19, p 20
 Belt conveyor, Robins, Apr 20, p 12*
 Belt fasteners, Crescent, Mar 16, p 47*
 Belt hooks, Chicago, Feb 2, p 62*
 Belt lacing, Bristol's steel, Feb 2, p 58*
 Belts, Endless silk sewed, May 4, p 49
 Bentley, F. T., Mar 23, p 21*
 Bertsch universal plate shear, Jan 5, p 17*
 Bessemer road, May 11, p 8
 Bethlehem plate mill, Removal of, Jan 12, p 18
 Bethlehem Steel Company, Apr 27, p 13
 Bicycle bells:
 Intaglio design, Apr 20, p 53
 Mossberg tire bell, Feb 2, p 61*; Apr 6, p 47*
 Bicycle chain, King, Apr 20, p 58*
 Bicycle chain adjustment, Feb 23, p 48*
 Bicycle crank, Scheeren's jointed, Feb 16, p 59*
 Bicycle crank hanger, National, Feb 2, p 62*
 Bicycle cyclometer, Veeder, Feb 16, p 58*
 Bicycle exhibition, New York City, Jan 19, p 43; Feb 2, p 47
 Bicycle handle bar binder, Jan 26, p 50
 Bicycle hangers, Springfield, Feb 2, p 56
 Bicycle holder, Lawn, Jan 19, p 46*
 Bicycle hubs:
 Keene direct spoke, Jan 26, p 50*
 National, Apr 6, p 30*
 Bicycle lamps:
 Arc light acetylene, Mar 2, p 57*
 Automatic acetylene, Jan 26, p 51*
 B. & R. acetylene, Mar 9, p 47*
 Brilliant acetylene, Feb 16, p 50*
 Bundy, Apr 6, p 50*
 Crescent acetylene, Mar 30, p 49*
 Gem acetylene, Feb 9, p 52*
 Lancaster acetylene, Mar 23, p 51
 Long beam acetylene, Mar 2, p 58*
 Majestic acetylene, Jan 5, p 50*
 Searchlight gas, Feb 16, p 60*
 Simplex automatic gas, Mar 2, p 58*
 Solar acetylene, Jan 19, p 47*
 Bicycle pedal, S. & G. combination, Mar 16, p 48*

Bicycle pumps:
Bridgeport, Feb 23, p 48*
M. & W. combination, Apr 27, p 46*
Peters & Drake hand lever, Feb 23, p 48*

Bicycle repair outfit, Glidden metallic, Jan 5, p 53*

Bicycle seat post, Climax, Apr 6, p 44*

Bicycle spoke threader, Peck, Feb 2, p 57*

Bicycle sundries:
Bridgeport Brass Company, Apr 6, p 44
Miller & Co., Feb 16, p 58

Bicycle tire inflator, Union automatic, Jan 26, p 50

Bicycle tire valve, No-stem safety, Jan 12, p 54*

Bicycle tires, Dynamometer for testing, Mar 9, p 12*

Bicycle toe clip, Ashworth, Feb 9, p 51*

Bicycle wheels, Chainless, Bevel gear blanks for, Feb 2, p 62*

Bicycles:
Hudson, Feb 9, p 49
Imperial, Jan 26, p 53*
Monarch, 1899, May 25, p 52*
Remington, Mar 9, p 47
Wolff, Feb 9, p 49; 23, p 50*; May 4, p 46

Bill, Old hardware, May 4, p 46

Birkinbine, John, The basis of the iron industry, Jan 12, p 6

Birmingham Cement Company, Mar 30, p 34

Bishop, H. H.:
Address at Philadelphia, Jan 26, p 40
Avenues of trade, Mar 2, p 48

Bit brace, Ball bearing ratchet, Making of, Jan 5, p 1*

Blair, William, Death, May 18, p 49

Blaidsell standard lathe, Feb 16, p 1*

Blast furnace consolidation, Virginia, Jan 12, p 30; 19, p 20; 26, p 32; Mar 2, p 15; Mar 16, p 7

Blast furnace gas for production of power, June 22, p 6, 19

Blast furnaces:
Building of, June 8, p 20
Compared with cupola practice, May 11, p 4
Destruction of copper tuyere, Feb 16, p 13*
Filling apparatus, Kennedy, June 29, p 8*
Wellman open hearth, May 25, p 16*

Bliss, E. W., & Co.:
Armature disk press, Apr 13, p 8*
Inclinable power presses, Mar 9, p 1*
Press with electric motor, Feb 9, p 13*

Bogy, Ben, oldest hardware traveler, Jan 12, p 45*

Boiler plates, Large, Mar 16, p 15

Boilers:
Explosions, Investigations of, May 11, p 14
Furnace efficiency, May 18, p 13
Hutchinson sectional vertical tube, Jan 19, p 4*

Lynn water tube, May 18, p 11*

Marine feed water regulators, Mar 16, p 6*

Standard testing methods, May 11, p 20

Bolles Iron & Wire Works, May 25, p 51

Bolt and nut plants consolidate, May 4, p 31

Bolt heading machine, Ajax, June 29, p 7*

Bolts:
Bolts and nuts in England, Jan 19, p 3
Seaman expansion, Mar 23, p 49*
Weights of carriage bolts, Apr 13, p 37

Book reviews:
American Trade Index, Jan 12, p 33
Benner's Prophecies, Feb 16, p 14
Business Atlas and Shippers' Guide, Mar 23, p 11
Dill on New Jersey Corporations, Feb 16, p 14
Elements of Trigonometry, H. C. Whitaker, Feb 16, p 14
Handbook of Engineering, Laboratory Practice, R. A. Smart, Feb 16, p 14

Book reviews (Continued):
Hardware Store Business Methods, Apr 13, p 39
Iron Making in Alabama, W. B. Phillips, Mar 23, p 11
Metric System, Hartford Steam Boiler Inspection & Insurance Company, Feb 16, p 14

Books for an iron and steel works' chemist, June 15, p 9; 22, p 29; 29, p 15

Boom of 1879-80, Mar 23, p 12

Boring holes near together, Mar 9, p 5*

Boynton, C. T., Mar 23, p 18

Brake, Steamship, Mar 16, p 15

Brammer Mfg. Company, June 1, p 43

Brass companies consolidate, Mar 9, p 36; 16, p 31

Brass melting furnaces, Construction of, May 25, p 20

Brass vs. sheet steel, Mar 30, p 19; Apr 6, p 34

Brazer, Enterprise perfection gas, Jan 12, p 53*

Brazil:
American trade opportunities, Feb 16, p 9; Apr 27, p 12
Iron works and other industries, June 1, p 7

Brick, Vrooman furnace arch, Feb 9, p 5*

Bridge builders and the prices of materials, June 1, p 2

Bridge builders' consolidation, Feb 2, p 23

Bridges:
Atbara bridge and standardization, Mar 23, p 23; Apr 27, p 14
East River, N. Y., Feb 9, p 31; Feb 23, p 19

British Columbia mineral output, May 18, p 2

Brooms, Hendee wire, Mar 2, p 56

Brown, W. L., Interview with, on Chicago's position in the iron trade, Feb 2, p 15

Brown Hoisting & Conveying Machine Company:
Cantilever crane, June 22, p 1*
Electric overhead tram rail, Jan 19, p 1*

Brown pyrometer, Apr 6, p 10*

Brushes, Economy wire wheel, Apr 6, p 45*

Buckets, Steel elevator, Feb 2, p 60*

Buffalo Steel Company, Apr 27, p 33; May 11, p 8*

Buildings:
Equipment of tall office buildings in New York, May 18, p 15
Phelps-Dodge Building and its tenants, May 18, p 18

Bullet, Ideal, Feb 9, p 51*

Bullock Electric Company's new plant, May 4, p 3

Bunsen cells modified, Feb. 16, p 2

Burditt & Williams' exhibit, Jan 12, p 50

Burr portable shaft key seater, Apr 6, p 12*

Bush Hardware Company's advertisement, May 11, p 43; 18, p 48

Business, Modern concentration of, Feb 23, p 38

Business cards, Jan 26, p 8; Feb 9, p 20

Business methods:
Cash business, Jan 19, p 35; Mar 9, p 42
Discussion in Missouri, Apr 20, p 44
Helping out dull seasons, Apr 13, p 40
How a novelty was marketed, Apr 6, p 42
"Never ready" people, Jan 19, p 43
Upbuilding of retail hardware trading, Feb 16, p 54

(See also Advertising; Hardware merchants.)

Business situation:
A welcome lull, Apr 20, p 15
Growing demand for goods, May 18, p 19
Inflation and contraction, Mar 30, p 16
Machinery builders crowded, June 22, p 17
Speculation in industrial stocks, Jan 26, p 19; Apr 13, p 15; June 8, p 15, 30

Business situation (Continued):
Standards of comparison changing, Jan 26, p 18
What will check the demand? Mar 16, p 17
(See also Finance.)

Butcher saw blades in coils, May 4, p 49

C.

Cables, Paper wrapped, Mar 2, p 14

Calcium carbide and acetylene in factories, Feb 23, p 3

Calcium carbide plant, Niagara Falls Power Company, Apr 27, p 9

California Retail Hardware Dealers' Association, Jan 12, p 46; 19, p 41; Feb 23, p 43

Caliper gauge, Billings', Jan 19, p 48*

Calk, Kinnear ice, Mar 2, p 55*

Calumet & Hecla Mining Company, Coal hoists of, Jan 5, p 12*

Cambria Steel Company, Mar 30, p 19

Can faucet, Litchfield, Feb 16, p 58*

Canada, Our trade relations with, June 1, p 38

Canadian notes:
Abbott-Mitchell Iron & Steel Company, Feb 23, p 15
Blast furnace for Toronto, Apr 20, p 29

Bounties, Iron and steel, June 8, p 11; 15, p 5; 22, p 19

Canadian Inland Transportation Company, Apr 20, p 29

Cape Breton iron works, Feb 16, p 10

Deseronto smelting works, Feb 9, p 6

Dominion Steel & Iron Company, Mar 23, p 6

Exporting charcoal iron, Apr 20, p 29

Fuel oil, Mar 23, p 6

Furnace and rolling mills amalgamation, Apr 20, p 29

Hamilton Blast Furnace Company, Jan 19, p 13

Locomotive works at Ottawa, Feb 9, p 7

Machinery tax, Apr 13, p 20

Metropolitan Power Company, Apr 20, p 29

Midland, Ont., as an iron center, Feb 23, p 15

Midland charcoal iron furnace, Feb 16, p 10

Niagara power franchise, Feb 23, p 15

Nova Scotia steel shipbuilding scheme, Mar 30, p 12

Ontario iron production, Apr 13, p 20

Ontario Mines Act, Amendment proposed, Mar 30, p 12

Quebec anti-bonus bill, Feb 16, p 10

Toronto as an iron center, Mar 23, p 6

Cans:
Garbage, Apr 20, p 56*
Milk, Feb 23, p 47

Capitaine, E., New Method of boring, milling and tapping machine frames by use of templates, Jan 26, p 3*

Capitaine petroleum engine, Mar 9, p 8*

Capitalizing our supremacy, Feb 16, p 16

Capper, Common sense re and de, May 11, p 47*

Car axle manufacture at Homestead, Apr 27, p 18

Car trucks, Compressed air, May 4, p 1*

Carbide holders, Portable, June 15, p 47

Carbide of silicon, June 22, p 5

Carbon, Determination of, in iron and steel without combustion apparatus, May 11, p 30

Carlin four-spool erectors' engine, Mar 16, p 13*

Carload, What is a? Feb 23, p 40

Carnegie, Andrew, Retirement, May 11, p 16

Carnegie interests, May 11, p 27; 18, p 27; 25, p 42c

Carnegie Steel Company, Feb 9, p 29; 31; 23, p 29; Mar 23, p 2; 30, p 15; Apr 6, p 31; 27, p 18; June 29, p 32

Carpenters and builders, Trade with, May 11, p 42

Carpet fastener, Zenith, Apr 13, p 46*

Carpet whip, Preston braided wire, Apr 6, p 47*

Carriage bolts, Weights of, Apr 13, p 37
 Carriage heater, Clark, Feb 2, p 38*
 Carriage odometer, U. S. Mfg. Company, Jan 5, p 50*
 Carrier, Jeffrey traveling freight, Feb 2, p 12*
 Cars, Steel, in wrecks, May 25, p 18
 Carving set, Mammoth, June 29, p 50*
 Cash business, Jan 19, p 35; Mar 9, p 42
 Cash recorder, Security, Mar 9, p 51*
 Cast borings in foundries, How to use, Feb 2, p 9
 Cast iron, Malleable, Feb 16, p 2; 23, p 4; Mar 9, p 16; 23, p 14; 30, p 18
 Cast iron pipe combination, Feb 9, p 22; Mar 30, p 31; Apr 13, p 8; May 4, p 13
 Casting machine, Heyl & Patterson, May 18, p 1*
 Castings:
 Artistic iron, Mar 2, p 3
 Coke and charcoal iron for malleable, Mar 30, p 30; Apr 6, p 5
 Catalogue cabinet, Leonard, Mar 30, p 43*
 Catalogue houses, Policy of merchants with reference to, Jan 19, p 42
 Catalogue making, A new feature in, Apr 13, p 42
 Cattaraugus Cutlery Company, Jan 19, p 37
 Cement, Illinois steel Portland, Mar 9, p 5
 Central American news, Feb 16, p 7; Mar 23, p 5
 Central Stamping Company, Jan 12, p 46
 Central steam condensing plants, Apr 20, p 3*
 Chalfant, J. W., Portrait of, Jan 5, p 21
 Chambers, B. F., How to use cast borings in foundries, Feb 2, p 9
 Chaplin automatic handle lathe, Feb 2, p 9*
 Charcoal iron making in Ontario, June 29, p 18
 Chatillon, John, & Sons, Apr 13, p 41
 Checks, Exchange on out of town checks, Apr 13, p 17; 27, p 19; June 15, p 38
 Chicago Belt Railway Company industrial locations, Mar 16, p 7
 Chicago House Wrecking Company, Mar 9, p 11
 Chicago Pneumatic Tool Company, Jan 12, p 2
 Chicago Retail Hardware Dealers' Association, Feb 9, p 37, 40; June 8, p 38
 Chicago Ship Building Company, May 25, p 1
 Chicago Time Register Company, Apr 27, p 14
 Chicago Wheel & Mfg. Company, Feb 2, p 56
 Chimney. Moving steel chimney, Jan 19, p 11
 Chimney cap, Everlasting, Feb 23, p 48*
 Chinese trade, American manufacturer's view, Mar 30, p 41
 Chisholm, S. H., Mar 23, p 17*
 Chuck jaws, Sweetland reversible, May 11, p 13*
 Chucks:
 National skeleton drill, Feb 2, p 14*
 Pratt positive driving drill, Feb 2, p 13*
 Church, G. W., Mar 9, p 44
 Churn, Ocean, June 15, p 47*
 Cincinnati Axle Company, Mar 30, p 29
 Cincinnati radial drill, May 11, p 11*
 Clamp, Sherman hose, Jan 5, p 53*
 Clark, J. L., June 15, p 41*
 Clark, J. W., Address, Feb 16, p 37
 Clark, J. W., and the Spalding policy, June 15, p 39
 Cleaning asphalt streets, Breslau, Mar 9, p 33
 Clifford, Alfred, Mar 23, p 9*
 Clinton Wire Cloth Company, Apr 6, p 41
 Clipper, Hotchkiss ball bearing, Jan 12, p 52*
 Clips, Cooper's all wrought, Jan 26, p 54*
 Clock base, Unique, June 22, p 54*

Clothes line hooks:
 Handy, Apr 20, p 58*
 Holdfast, Apr 13, p 45*
 Clutch, Orton friction, for small power, Mar 2, p 5*
 Coal:
 Production in 1898, June 1, p 13
 Soft, Smoke nuisance, June 15, p 18
 Coal companies combine, June 22, p 5
 Coal hoists, Calumet & Hecla Mining Company, Jan 5, p 12*
 Coal mining, Machines in, June 29, p 17
 Coalizing station of Erie Railroad, Apr 13, p 1*
 Coke and charcoal iron for malleable castings, Mar 30, p 30; Apr 6, p 5
 Coke iron versus charcoal iron and its future ability to compete, Feb 16, p 16
 Coke workers' wages advance, May 14, p 29
 Colby, A. L., Best books for an iron and steel works chemist, June 15, p 9; 22, p 29; 29, p 15
 Cold Rolled Shafting Manufacturers' Association, Apr 13, p 33
 Colonial Iron Company, May 25, p 41
 Colonies, Need of, to help trade, Mar 2, p 20
 Colorado freight suit, Apr 13, p 4
 Columbia Automobile Company, May 4, p 29
 Columbia Iron & Steel Company, Sale of, Feb 16, p 18
 Commerce. (See Export trade; Trade; Comparometer; Stupukoff, Apr 6, p 14*
 Compressed air street car truck, May 4, p 1*
 Conditional nature of patent property, Apr 13, p 13
 Consolidated Smelting & Refining Company, Mar 9, p 32
 Consolidations. (See Trusts; also, Brass; Copper; &c.)
 Consuls and our foreign trade, Jan 12, p 12; Apr 13, p 16
 Continental Coke Company, May 18, p 6
 Cook, E. S., Blast furnace compared with cupola practice, May 11, p 4
 Cooling tower and condenser installation, Feb 2, p 1*
 Cope, G. W., The Chicago iron trade in 1898, Jan 5, p 8
 Copper:
 Boom in trade, Jan 19, p 16
 Lake district, Jan 19, p 30
 New Lake explorations, May 18, p 3
 Weight of copper sheets, Mar 30, p 34
 Copper companies consolidate, Mar 16, p 32
 Copper plating vessels, Feb 23, p 1*
 Cord, Fiber seaming, Feb 23, p 50*
 Cork screws:
 Clough, Jan 26, p 50*; April 13, p 44
 Williamson, Apr 20, p 58*
 Corn huskers:
 Milwaukee, Mar 2, p 57
 Wilcox-Lillie, Feb 23, p 49*
 Corn planter, New Departure rotary, Apr 20, p 56*
 Crane, A. M., Mar 23, p 20*
 Crane Company, Chicago, Jan 12, p 21
 Cranes:
 Brown cantilever, June 22, p 1*
 Brown electric traveling, Jan 19, p 1*
 Pneumatic, June 1, p 5*
 Crimping machine, Rudolphi & Krummel, Mar 30, p 8*
 Crompton, W. H., Shear Company, Apr 6, p 44
 Cuban tariff, Jan 5, p 18
 Currency. (See Finance.)
 Curry comb, Baker, Mar 9, p 49*
 Cutter rack, Harrington folding, May 4, p 7*
 Cutting off machine, Lucas & Gliem, Jan 19, p 13*
 Cycle path and sidewalk machine, June 22, p 52*
 Cyclometers, New Departure security, May 4, p 52*
 Cylinder, Red Jacket brass lined, Mar 9, p 47

D.

Daimler Mfg Company, June 8, p 30

Dale, Sir David, Industrial conciliation in England, Mar 23, p 3
 Dallett duplex boiler shell drill, June 1, p 1*
 Daly, Charles, Death of, Jan 19, p 36
 Daniels, F. H., Mar 23, p 18*
 Danielson Machine & Tool Company, May 4, p 7
 Davis, G. C., The malleable iron industry: Its development in the United States, Feb 9, p 14
 Davis, S. M., Address, Feb 23, p 43
 Davis key seater, May 25, p 8*
 Dean Bros. pressure and speed governor, June 1, p 4*
 Decade of progress in reducing costs, Mar 2, p 6
 Defiance Machine Company, May 18, p 7*; June 29, p 11*
 Dempsey Mfg. Company, May 11, p 47*
 D'Esté & Seeley pressure regulator, May 25, p 6*
 De Vol, P. C., Address, Feb 16, p 45
 Diamond State Steel Company, May 4, p 6
 Die sinkers' flexible drilling, grinding and polishing machine, Feb 2, p 13*
 Disston, Henry, & Co., Mar 9, p 40; June 22, p 37
 Dixon, Walter, American management, labor and resources, May 4, p 4
 Dodge capillary, chain and ring oiling bearings, Feb 23, p 11*
 Dominion Steel & Iron Company, June 29, p 17
 Door catch, Automatic, Jan 12, p 51*
 Door hangers:
 Fire door, Apr 27, p 44*
 Gardner ball bearing, Feb 2, p 57*
 Lane elevator, Feb 23, p 49*
 Le Roy noiseless, Jan 5, p 54*
 Door hinges, Olympia non-holdback spring, Feb 2, p 59*
 Door holder, Fairy, May 18, p 53*
 Door key, White's Universal, Mar 9, p 48*
 Door knob, Victor screwless, May 4, p 49; 11, p 46*
 Door set, Fortuna design, June 15, p 48*
 Dougherty, G. T., Determination of carbon in iron and steel without combustion apparatus, May 11, p 30
 Doxsee, C. M., Advertising, Feb 16, p 52
 Drawback rates, Jan 16, p 17
 Dredge built for Russia, Mar 16, p 11
 Drilling machines:
 Champion improved, June 1, p 46*
 Cincinnati radial, May 11, p 11*
 Dallett duplex, June 1, p 1*
 Die sinkers' flexible, Feb 2, p 13*
 York post radial, Mar 2, p 14*
 Drillings, Standardized, May 11, p 17
 Dust cloth holder, Handy, Apr 6, p 45*
 Dynamometer for testing bicycle tires, Mar 9, p 12*
 Dynamos:
 Direct connected, Standards, May 11, p 21
 Gas engines for, Jan 26, p 6*
 Mayer dynamos, Apr 20, p 13*
 Nash direct connected, Mar 30, p 11*

E.

Eagle Horse Shoe Company, Feb 23, p 47
 East River Bridge, N. Y., Bids for towers and end spans, Feb 9, p 31; 23, p 19
 Eaton, Cole & Burnham Company, Mar 23, p 47
 Eaves trough hanger, Yankee improved adjustable, Apr 13, p 44
 Economy in small power, Apr 6, p 8
 Edenborn, William, Mar 23, p 16*
 Egan Mfg. Company:
 Automatic oil cup, Mar 30, p 5*
 Inverted valve steam trap, Apr 6, p 12*
 Egg beaters:
 Dover, Jan 19, p 48*
 Standard, Apr 20, p 54*
 Egg tester, X-Ray, May 25, p 52*
 Eight-hour labor bill, Feb 9, p 6; 23, p 13

Ejector, Automatic chemical, Feb 23, p 47*

Electric arc burning, Steel girders, Mar 30, p 3

Electric fans, Sturtevant, Jan 19, p 9*; Feb 9, p 9*

Electric light, Nernst, Mar 9, p 18

Electric motors:

- Direct current stationary, Feb 16, p 5*
- Mayer motors, Apr 20, p 13*
- Sturtevant bi-polar, Apr 27, p 13

Electric vehicles, (See Motor vehicles.)

Electrical industries in 1898, Jan 5, p 5

Electricity in engineering works, Use of, Jan 12, p 13

Electrolytic galvanizing, Jan 26, p 17; Feb 2, p 26

Elevator, Plunger direct acting hydraulic, Jan 19, p 7*

Ellwood, I. L., Mar 23, p 17*

Emery wheel dresser, Huntington, Feb 2, p 56

Empire Steel & Iron Company, Apr 13, p 29

Enamelled ware patent litigations, Feb 23, p 46; Mar 30, p 45

Enamelled ware situation, Jan 26, p 47

Enameling as an industry, Mar 23, p 10

Engineers' Society of Western Pennsylvania, Mar 30, p 15

Engines:

- Capitaine petroleum, Mar 9, p 8*
- Filer & Stowell heavy cross compound Corliss, Jan 12, p 1*
- German rolling mill, June 8, p 8*; 15, p 6; 22, p 8*
- Hoisting engines, Mar 9, p 7*; 16, p 13*
- Marine, New cruisers, May 18, p 12
- Mietz & Weiss kerosene, Mar 2, p 1*
- Pumping engines, Mar 30, p 9; Apr 27, p 1*

(See also Gas engines.)

England's foreign trade and our own, Mar 16, p 16

Eusley Land Company, Mar 30, p 5

Enterprise Mfg. Company, Excursion to works, June 22, p 37

Erectors' engine, Carlin four-spool, Mar 16, p 13*

Erie Railroad, New coaling station, Apr 13, p 1*

Europe, Trade conditions, June 29, p 42

Expenses of jobbers' salesmen, June 15, p 40; 22, p 37

Explosives, High, in guns and shells, Feb 23, p 8

Export trade:

- Consuls and our foreign trade, Jan 12, p 12; Apr 13, p 16
- England:

 - Compared with United States, Mar 16, p 16
 - Iron and steel, Feb 16, p 6
 - Locomotives, 1898, Feb 16, p 6
 - High prices killing trade, Apr 13, p 39
 - Iron and unwrought steel, Feb 2, p 14; 16, p 15
 - Ocean shipping and the export trade, Jan 12, p 3
 - Points in regard to trade, Jan 26, p 46
 - Solicitude for, Apr 13, p 15
 - United States as an export country, Jan 5, p 21a; Mar 16, p 16; June 22, p 46

(See also Iron trade.)

Express charges, Jan 12, p 47; Feb 2, p 46; Apr 13, p 41

F.

Fable: The condemned razor, June 29, p 49

Fairbanks-Morse gasoline air compressor, June 29, p 12*

Faries Mfg. Company, Apr 13, p 44

Farm implement trade, June 1, p 17; 8, p 17

Farmer and industrial progress, Apr 6, p 16

Farmer combination lathe and grinding tool, Mar 16, p 1*

Farquhar, A. B., Trade, trusts and tariffs, June 15, p 13; 22, p 16, 18

Farquhar pulley molding machine, Mar 9, p 11*

Faucet, Straight way, Jan 5, p 52*

Fawcett, Waldon, Shipping on the Great Lakes and the iron trade, May 4, p 8

Federal Steel Company, Mar 30, p 19

Feed water regulators on the British ship "Pactolus," Mar 16, p 6*

Fences:

- Clinton electrically welded, Mar 16, p 46*
- Dwiggins' wire, Mar 9, p 48*
- Keystone lawn fencing, May 4, p 51*
- Kilmer wire, Jan 19, p 47*
- Kitselman ornamental, Apr 20, p 53
- Royal woven wire, May 4, p 51*
- Sterling woven wire, Jan 12, p 54*

Ferrante Machine Company, Jan 19, p 2

File case, Howell, Apr 27, p 39*

Filer & Stowell heavy cross compound Corliss engine, Jan 12, p 1*

Finance:

- Banking reform, Mar 30, p 17
- Bankruptcy law, Apr 6, p 9
- Bill to protect currency, Feb 2, p 24
- Bond secured circulation, Apr 20, p 14
- Cheapness of money, Jan 5, p 21b; Feb 9, p 17
- Gold, The movement of, May 4, p 17
- Paper money and gold exports, June 8, p 16
- Volume and velocity of currency circulation, Mar 2, p 21

Fires:

- Home Life Insurance Company, Jan 19, p 15
- Miller, Sloss & Scott, Apr 6, p 41

Flag fender, Hart's automatic, June 22, p 53*

Flax straw, Cummers' process for retting, Jan 19, p 9

Flint, C. R., Industrial consolidations, June 1, p 10

Floor scraper, Osborn metal head, Mar 9, p 52*

Floors, brick, Method of laying, Mar 16, p 31

Fly catchers:

- Bigelow wire, Mar 9, p 47
- Illinois, May 18, p 54*
- Newton, May 25, p 52*

Fly wheels, Rolling mill, May 18, p 4*

Food chopper, Enterprise, Mar 23, p 51*

Foot scraper, Perfect steel, Jan 26, p 54*

Foot warmer, Chicago, Jan 26, p 52*

Forbell, B. F., vs. New York City, Mar 2, p 21

Foundries:

- Cast borings in, Feb 2, p 9
- Electricity in, June 15, p 2
- Foundry for light castings on upper floor, May 25, p 20
- General Electric Company, Apr 6, p 1*; Apr 27, p 10*
- Handling materials, May 25, p 9*
- Heating of, Apr 27, p 10*
- Foundry crayons, Feb 9, p 50

Fox Pressed Steel Company and Schoen Pressed Steel Company, Consolidation of, Jan 12, p 31

Franklin Institute of Philadelphia, Seventy-fifth anniversary, Feb 2, p 25

Franz Krein Chain Works, Apr 6, p 42

Freight carrier, Jeffrey traveling, Feb 2, p 12*

Freight rates:

- Australia and New Zealand situation, Feb 2, p 51
- Colorado Fuel & Iron Company's suit, Apr 13, p 4
- Lower, for export trade, Jan 19, p 14
- Natural and equitable, Jan 26, p 18
- Opposition to reduction in, Apr 13, p 37
- Pig iron, Feb 9, p 19
- Proposed advances, June 8, p 20; 29, p 22
- Special rates for favored parties, Jan 12, p 16

Friction clutch, Orton, for small powers, Mar 2, p 5*

Fritz, John, Rolling mill fly wheels, May 18, p 4*

Fuel, Liquid, Apr 20, p 13

Furnace arch brick, Vrooman, Feb 9, p 5*

Furnace consolidation, Jan 12, p 30; 19, p 20; 26, p 32; Mar 2, p 15; 16, p 7

Furnaces, Liquid fuel crucible, Apr 13, p 13*

Furring, Nailable iron, Mar 23, p 7*

G.

Galvanizing, Electrolytic, Jan 26, p 17; Feb 2, p 26

Garbage can, Corrugated, Apr 20, p 56*

Garbage pail, Sanitary, Apr 13, p 45*

Garrett, William, Observations of an American rolling mill engineer, Mar 30, p 4

Garvin Machine Company, Preferred stock of, Apr 20, p 28

Gas engines:

- Blast furnace gas, Use of, June 29, p 6, 19
- Charter, Feb 9, p 4
- Dynamo driving, Jan 26, p 6*
- From the user's standpoint, Apr 6, p 8
- Lewis, Jan 12, p 5*
- Nash, Mar 30, p 11*; Apr 13, p 10*

Gas fixture, Miller patent extension, Mar 30, p 47

Gas fixture consolidation, Apr 6, p 15; May 11, p 11

Gas holder, Destruction of, New York, Jan 26, p 23

Gates, J. W., Mar 23, p 15*

Gathmann gun, Mar 23, p 22

Gauges:

- Billing's, Jan 5, p 54*; 19, p 48*
- Wire gauge, Stubs, Jan 19, p 46

General Electric Company:

- Heating the foundry, Apr 27, p 10*
- Motors, Feb 16, p 5*
- New foundry, Apr 6, p 1*

Geometric Drill Company, May 25, p 15

German rolling mill engines, June 8, p 8*; 15, p 6; 22, p 8*

Glass cutter, Accurate, Mar 16, p 46*

Glue heater, Improved steam, Apr 20, p 56*

Goettscche, Ehler, June 8, p 39*

Gold:

- Increase of gold and the advance of prices, May 18, p 20
- Movement of gold, May 4, p 17
- Paper money and gold exports, June 8, p 16
- Production, United States, 1898, Jan 12, p 4; June 22, p 6

Goodell power hack saw, Mar 2, p 15

Gorton disk surface grinding machine, Jan 26, p 1*

Governor, Dean, June 1, p 4*

Graining paper, Mar 2, p 56*

Graphite:

- Manufacture of, June 8, p 6
- Production of, May 11, p 18

Grates:

- Gumphert shaking, Apr 20, p 1*
- Sennett rocking, Mar 23, p 5*

Gray & Dudley Hardware Company's banquet, Jan 12, p 49

Green, W. A., Mar 23, p 17

Grille, Ludlow-Saylor wrought iron, Jan 26, p 9*

Grinding machines:

- American twist drill, June 1, p 9*
- Combined with lathe, Mar 16, p 1*
- Gorton disk surface, Jan 26, p 1*
- Niagara emery grinder, Feb 2, p 60*
- Safety Emery Wheel Company, Mar 30, p 3*
- Tanite emery, Apr 6, p 13*
- Yankee twist drill, Mar 2, p 16*

Grindstone hanger, Giant, Mar 9, p 50*

Growing demand for goods, May 18, p 19

Grubbing machine, Steel Giant, Mar 23, p 52*

Gruison Iron Works, May 11, p 15

Gumphert shaking grate, Apr 20, p 1*

Guns:

- British naval, Jan 26, p 8
- Gathmann, Mar 23, p 22
- High explosives in, Feb 23, p 8

H.

Hack saw, Universal power, May 4, p 6*

Hackett Hardware Company, C. W., Mar 30, p 41
 Hallidie Wire Rope, Tramway & Cable Company, Apr 27, p 18
 Halstead, Consul. Bolts and nuts in England, Jan 19, p 3
 Halter chains, Oneida, June 1, p 44*
 Hammer, Little Giant pneumatic, May 18, p 17
 Hammocks:
 Hanging correctly, May 4, p 49*
 Lloyd wire, Apr 13, p 44
 Palmer's royal social, Jan 12, p 53
 Utopia, Feb 2, p 60*; Mar 9, p 51*
 Handle polishing machine, Defiance, June 29, p 11*
 Hansel, Charles, Business cards, Jan 26, p 8
 Hardening apparatus, Sponzel, June 8, p 12*
 Hardware antiquities, May 4, p 46
 Hardware Association of the City of New York, May 11, p 39
 Hardware expansion, June 22, p 47
 Hardware merchants:
 Jobber's place in distribution of hardware, Mar 9, p 43
 Joint shipments for retailers, Apr 27, p 38
 Last century methods, June 8, p 44
 Revival of "Good faith," May 11, p 40
 Policy with reference to catalogue houses, Jan 19, p 42
 (See also Advertising; Business methods; Salesmen.)
 Hardware premiums, Apr 13, p 37
 Hardware trade:
 Avenues of trade, Mar 2, p 48
 California matters, Feb 23, p 43
 Carpenters and builders, Trade with, May 11, p 42
 Combinations, Effect of, Mar 2, p 42
 Discussion in Missouri, Apr 20, p 44
 Forty years in the trade, Feb 9, p 44
 Germany, American trade, Mar 30, p 40
 Local competition, Feb 16, p 42
 Opportunity for American hardware in foreign markets, Jan 12, p 43
 Relations between jobbers and retailers, Feb 2, p 54; Mar 30, p 40
 Spalding policy, Jan 5, p 43; 12, p 38; 19, p 38; Feb 2, p 50; Mar 30, p 40; Apr 27, p 40; May 4, p 44; 11, p 40; 18, p 51; June 1, p 40; 15, p 39; 29, p 45
 United States, June 8, p 42
 Upbuilding of retail trade, Feb 16, p 54
 Western situation, Apr 27, p 40
 (See also Export trade.)
 Harrington folding cutter rack, May 4, p 7*
 Hartford water motor pump, Feb 23, p 13*
 Havana's new hardware store, Feb 9, p 49
 Hawaiian Islands:
 Hardwareman in, Feb 23, p 40
 Hardware house, June 22, p 36
 Tariff, May 4, p 12
 Hawley, M. C., Death of, Jan 19, p 36*
 Hay-Budden Mfg. Company, Jan 12, p 47
 Hay, W. H., Forty years in the hardware business, Feb 9, p 44
 Hay knife, Iwan sickle edge, Jan 26, p 53*
 Hay tools, Janesville, Feb 23, p 47
 Haydenville Mfg. Company, Apr 6, p 43
 Heating foundry of General Electric Company, Apr 27, p 10*
 Heavy Hardware Jobbers' National Union, Apr 13, p 37
 Helgesen, H. T., Modern concentration of business and its logical consequences, Feb 23, p 38
 Henderson steam heated tumbling barrel, Jan 5, p 16*
 Hendryx, A. B. & Co., Feb 2, p 49
 Henning, G. C., Investigations of boiler explosions, May 11, p 14
 Hessel, John, How to compete with the department store, Feb 9, p 46
 Hewitt, A. S., Prophecies of, Jan 19, p 8

Heyl & Patterson casting machine, May 18, p 1*
 Hibbard, Spencer, Bartlett & Co., Jan 26, p 48
 Hirst, William, The design of roughing rolls, Mar 16, p 2*
 Hoadley-Knight auto-trucks, May 4, p 1*
 Hobson, Thomas, The Philadelphia Iron market in 1898, Jan 5, p 21
 Hoisting engines:
 Carlin four-spool, Mar 16, p 13*
 Hunt electric, Mar 9, p 7*
 Hoists:
 Coal hoist, Jan 5, p 12*
 Compressed air, June 1, p 5*
 Home Life Insurance Company's Building, Damage by fire, Jan 19, p 15
 Honecker, C. A., Mar 23, p 18*
 Hoop iron and cotton tie consolidation, Mar 30, p 31; Apr 13, p 30; 20, p 28; 27, p 32
 Hoops:
 Herrick's wire, June 1, p 44*
 Oatman's Handy, Mar 23, p 52*
 Horseshoe trade, Jan 19, p 39
 Hungerford Brass & Copper Company, Apr 6, p 42
 Hunt, A. E., Death, May 4, p 18*
 Hunt electric hoisting engines, Mar 9, p 7*
 Husking pins, Tyler's corrugated steel, Apr 6, p 49*
 Hutchison, Richard:
 Sectional vertical tube boiler, Jan 19, p 4*
 Steam and oil separator, Feb 16, p 8*
 Hyatt roller bearing, Feb 23, p 12*
 I.
 Ice cream freezer, Easy, Feb 16, p 58*
 Ice jams in Niagara gorge, Feb 9, p 4
 Ice pick, White Mountain, Mar 23, p 50*
 Ice scales, Invincible, Jan 19, p 48*
 Illinois, Arbitration in, May 4, p 17
 Illinois Retail Hardware Association, June 29, p 40
 Illinois Steel Company, Jan 5, p 7, 19; Feb 9, p 5; Mar 9, p 5
 Slabbing mill, June 29, p 1*
 Illuminating device, Marine, May 25, p 18
 Imitations, Protection against, Feb 2, p 12
 Import trade, Great Britain, Excess of, Feb 23, p 6
 India, American manufacturer's impressions, June 1, p 37
 Indiana anti-trust decision, June 15, p 5; 22, p 15
 Indicator, Woodman & Hudson speed, Jan 12, p 13*
 Industrial and material progress, May 18, p 19; Apr 6, p 16
 Industrial conciliation in England, Mar 23, p 3
 Industrial consolidations, Mar 23, p 12; June 1, p 10; 22, p 15; 29, p 34
 Industrial organizations, Strength of, May 4, p 16
 Industrial stock speculation, Jan 26, p 19; April 13, p 15; June 8, p 15, 30
 Industry, American development, Mar 30, p 6
 Ink well, Hayne suspended, May 4, p 52*
 International Car Wheel Company, June 15, p 34
 International Steam Pump Company, Mar 16, p 29
 Interstate Commerce Commission, Jan 12, p 17; 19, p 6
 Iowa Retail Hardware Dealers' Association, Jan 26, p 45; Feb 16, p 44
 Ireland, C. H., Address of, June 22, p 42
 Iron:
 Determination of carbon without combustion apparatus, May 11, p 30
 Malleable cast iron, Feb. 16, p 2; 23, p 4; Mar 9, p 16; 23, p 14; 30, p 18
 Manganese in the acid open hearth process, Mar 30, p 13
 Manufacture of bar iron, Improvements, May 25, p 14

Iron (Continued):
 Standardized iron samples, May 25, p 19
 Use, design and manufacture of iron in ornament, Apr 27, p 3*
 (See also Pig iron.)
Iron Age, The, advertising prize competition, June 29, p 43
 Iron and steel, Best books on, June 15, p 9; 22, p 29; 29, p 15
 Iron and steel consolidation, Mar 9, p 15; 16, p 18; Apr 6, p 18; 13, p 30; 20, p 28; 27, p 18; May 4, p 31; June 1, p 16; 15, p 13, 17
 Iron and steel industries, American management, labor and resources, May 4, p 4
 Iron and steel works, New scale, June 15, p 19
 Iron ore property, Growing interest in, Mar 30, p 18
 Iron production:
 Argentine Republic, Mar 23, p 7
 Basis of iron industry, Jan 12, p 6
 Charcoal iron in Ontario, June 29, p 18
 Decade of progress in reducing costs, Mar 2, p 6
 English finished iron industry, Apr 27, p 33
 Lake districts, Jan 5, p 17, 21b; 12, p 7; 19, p 10; Feb 2, p 16; 9, p 2; Mar 9, p 6; 30, p 9; Apr 6, p 4; 13, p 32; 20, p 30; 27, p 18; May 18, p 11; 25, p 26, 39; June 8, p 13; 15, p 12; 22, p 13; 29, p 11
 Malleable iron, Development in U. S., Feb 9, p 14
 Prophecies of A. S. Hewitt, Jan 19, p 8
 Russian industry, June 29, p 20
 Swank's 1898 figures, May 25, p 28
 (See also Pig iron production.)
 Iron studding and furring, Nailable, Mar 23, p 7*
 Iron trade:
 Brazil, American trade with, Feb 16, p 9
 Capitalizing our supremacy, Feb 16, p 16
 Chicago, 1898, Jan 5, p 8; Feb 2, p 15
 Condition of, Mar 16, p 19
 English, 1898, Jan 26, p 14; Feb 16, p 6, 11
 Farm implement contracts, June 8, p 17
 Freight rates advance, June 8, p 20
 Philadelphia, in 1898, Jan 5, p 21d
 Prices and profits, Mar 16, p 17
 Reduction of expenses by consolidation, May 25, p 27
 Review of Jan.-June, 1899, June 29, p 19
 Scrap iron trust, Feb 23, p 16
 Shipping in the Great Lakes and the iron trade, May 4, p 8
 Transfer of capital, Jan 26, p 20
 Views of Pres. Buffington, June 15, p 20
 Western bar iron, June 1, p 16
 (See also Export trade.)
 J.
 Jacks:
 Covert steel carriage, Feb 2, p 59*
 Samson malleable iron, Feb 2, p 62*
 Janney, Semple, Hill & Co., Apr 13, p 42*
 Japan:
 As it appeared to an American manufacturer, Jan 19, p 37
 World's fair, 1902, Apr 6, p 31
 Jeans, J. S., World's consumption of pig iron in the steel industry, June 1, p 14
 Jeffrey traveling freight carrier, Feb 2, p 12*
 Jobbers (See Hardware merchants; Salesmen.)
 John Hancock: His book, June 8, p 44
 Johnston, E. E., Pig iron analysis, May 18, p 8
 Joint shipments for retailers, Apr 27, p 38
 Jones & Laughlins, Limited, May 25, p 7
 Journal bearings, Spiral, Mar 9, p 4*
 K.
 Kansas Retail Hardware Dealers' Association, Mar 2, p 43

Keefe, J. S., Mar 23, p 20*

Keegan charges against the Navy Ordnance Bureau, Feb 9, p 6; 23, p 14

Keep, W. J., Handling materials in a foundry, May 25, p 9*

Kelley, J. C., The use of gas engines for dynamo driving, Jan 26, p 6

Kelly Axe Company, June 1, p 41

Kennedy furnace filling apparatus, June 29, p 9*

Kerosene engines, Mietz & Weiss, Mar 2, p 1*

Kettle, Security, Feb 9, p 50*

Key duplicating machine, Apr 20, p 2*

Key remover, Nooman's crank, Feb 9, p 51*

Key seater, Davis, May 25, p 8*

Kiesselbach, C., German rolling mill engines, June 8, p 8*; 15, p 6; 22, p 8*

Kirchhoff, C., A decade of progress in reducing costs, Mar 2, p 6

Knight of the grip, Jan 12, p 44; 19, p 40; Feb 2, p 53; 16, p 57; Mar 9, p 41; 23, p 45; Apr 13, p 38; 27, p 37; May 18, p 50

Knives:

- Billings' sportsman's, Feb 16, p 59*
- Dexter, Jan 5, p 49
- Goodell table, Apr 27, p 42*
- Iwan hay knife, Jan 26, p 53*
- Mammoth carving set, June 29, p 50*
- Victor folding guard, June 22, p 53*
- Kraut cutter, Disston adjustable, Mar 30, p 47

Krueger, W. J., June 8, p 39*

Kupferle, J. C., Apr 13, p 42

L.

Labor:

- Arbitration in Illinois, Jan 12, p 18; May 4, p 17
- Development of industry in America, Mar 30, p 6
- Eight-hour bill in Congress, Feb 9, p 6; 23, p 13
- Industrial conciliation in England, Mar 23, p 3
- Working overtime, Jan 19, p 16; Feb 2, p 25

(See also Wages.)

Lackawanna Iron & Steel Company, Mar 9, p 18; Apr 13, p 3

Ladders:

- Lane store, Mar 16, p 49*
- McCabe shelf and ceiling, June 29, p 50*
- Magic trolley, May 25, p 54*
- Rolling step ladder, Mar 23, p 49

Ladner, C. F., Address of, Feb 16, p 36

Lake iron ore. (See Iron production.)

Lambert, John, Mar 23, p 15*

Lamp, Invincible vapor, Mar 23, p 50*; May 4, p 49

(See also Bicycle lamps.)

Lane, J. G., June 8, p 41*

Lane & Bodley Bennett-Corliss air compressor, Jan 19, p 10*

Lathes:

- Baird engine lathe, June 1, p 12*
- Blaisdell standard, Feb 16, p 1*
- Chaplin automatic handle, Feb 2, p 9*
- Combined with grinding machine, Mar 16, p 1*
- Defiance spoke and handle, May 18, p 7*
- Notes on, Jan 26, p 10
- Tanite polishing, Apr 6, p 13*

Lawn mower sharpener, Maynard, June 8, p 50*

Lawn mowers:

- Coldwell's self-adjusting, Apr 20, p 54*
- K. R. B., May 11, p 48*

Lawn sprinklers:

- Adjustable, Feb 2, p 59*
- Pullman, May 25, p 51*

Lead smelters and refiners consolidate, Mar 9, p 32

Lead smelting, Cost of, Mar 2, p 12

Lemon squeezers:

- Delmonico, Apr 13, p 46*
- Leader, Feb 16, p 59*
- X-Ray, May 11, p 45*

Leonard catalogue cabinet, Mar 30, p 43*

Lewis gas engine, Jan 12, p 5*

Lift, Burr steel safety, Feb 2, p 60*

Lighting factories by calcium carbide and acetylene, Feb 23, p 3

Limestone consumed in making pig iron, June 1, p 5

Liquid fuel, Apr 20, p 13

Local hardware associations, Formation of, May 18, p 46

Lock, Warner steel rim, Apr 20, p 55*

Locking pivot, B. T. C., Mar 23, p 49*

Locomotives:

- Allen valve, May 25, p 4*
- British export, 1898, Feb 16, p 6
- Cast steel frames, Jan 12, p 12
- Japan, Jan 12, p 18
- Link in early history, June 1, p 28c
- Londonderry Iron Company, Limited, Mar 2, p 13

Lott, E. C., Mar 23, p 19*

Lowe smoke preventer, Jan 12, p 8*

Loyhed, E. H., Combinations and trusts, June 29, p 47

Lucas & Gilem:

- Automatic saw sharpening machine, June 19, p 13*
- Bar cold saw cutting off machine, Jan 19, p 13*

Ludlow-Saylor wrought iron grille, Jan 26, p 9*

Lukens Iron & Steel Company, Feb 9, p 2

Lunch box, Folding, June 22, p 53*

Lynn water tube boiler, May 18, p 11*

M.

McCormick Harvesting Machine Company, Mar 9, p 12

Machine frames, Boring, milling and tapping, by use of templates, New methods, Jan 26, p 3*

Machine shop at New York Navy Yard, May 25, p 31

Machine tools:

- American, Protection against imitations, Feb 2, p 12
- English and American, Jan 26, p 10; Mar 9, p 4
- Paris Exposition, June 1, p 6

Machinery trade:

- Builders crowded with work, June 22, p 17
- Cincinnati, Feb 2, p 26
- Italy, 1897, Feb 2, p 18
- Worcester industry, Mar 9, p 2

Machines in mining coal, June 29, p 17

McLoughlin, Dennis, June 8, p 39*

McWilliams, J. W., Death of, Mar 9, p 40

Magnates of the wire industry, Mar 23, p 15*

Magnetic ore deposits, Use of magnetic instruments for discovering, Apr 13, p 6*

Maher, W. H., A merchant of the last century, June 8, p 44

Malleable cast iron, Feb 16, p 2; 28, p 4; Mar 9, p 16; 23, p 14; 30, p 18

Malleable castings, Coke and charcoal iron for, Mar 30, p 30; Apr 6, p 5

Malleable iron industry, Its development in the United States, Feb 9, p 14

Mallory-Wheeler Co., Jan 26, p 50

Manchester Ship Canal, Feb 2, p 10

Mandelbaum, J. J., Addresses of, June 22, p 41, 44

Manganese in the acid open hearth process, Mar 30, p 13

Manistee air pump, Apr 27, p 1*

Mannesmann Tube Company's projectile contract, Mar 30, p 10

Manufacturers, Frontier limitations of, Feb 23, p 18

Manufacturers' Association of New York, Apr 20, p 37

Manufacturers in Argentine Republic, Mar 23, p 7

Manville Covering Company, Apr 27, p 9

Marchal, M. J., Influence of arsenic on the mechanical properties of steel, Apr 13, p 5

Marconi wireless telegraphy, Apr 13, p 3; 20, p 9*; 16

Marine engineering on the Great Lakes, Jan 12, p 4

Marine illuminating device, May 25, p 18

Maritschek, Emil, Protection against imitations, Feb 2, p 12

Marking of oil cloths, Mar 30, p 40

Matthai, W. H., Our export trade, June 22, p 46

Matthewman, F. A., Manganese in the acid open hearth process, Mar 30, p 13

Mattox, A. H., Progress at the Paris Exposition, Mar 9, p 2

Mattox, W. S.:

- Ocean shipping and the export trade, Jan 12, p 3
- English iron trade in 1898, Jan 26, p 14; Feb 16, p 11

Manchester Ship Canal, Feb 2, p 10

Mayer dynamos and motors, Apr 20 p 13*

Meat juice extractor, Brighton, Feb 2, p 59*

Melting furnace, Grant portable, Jan 5, p 51; 12, p 54

Merrell Mfg. Company, May 4, p 11*

Metric system of weights and measures, Feb 2, p 24

Metropolitan Street Railway Company, New York, Compressed air, May 4, p 1*; June 8, p 1*

Mexico, Trade conditions in, Feb 23, p 10

Michigan's anti-trust law, June 22, p 4

Michigan Stove Company, Handling materials in a foundry, May 25, p 9*

Mietz & Weiss kerosene engine, Mar 2, p 1*

Milk cans, Sturges, Feb 23, p 47

Milk pail, Anti-dirt, Apr 6, p 45*

Miller, Sloss & Scott's fire, Apr 6, p 41

Milling tool, Adjustable hollow, May 25, p 15*

Milwaukee Hay Tool Company, Mar 9, p 47

Mineral resources of Porto Rico, Mar 16, p 9

Mineralogy and mining, Proposed department of, Jan 19, p 8

Miners' Copper Company, Feb 2, p 39

Mining concession in China, Anglo-American, Feb 16 p 6

Mining law, New British Columbia, Feb 2, p 13

Minneapolis Retail Hardware Association, Feb 16, p 43

Minnesota Retail Hardware Association, Jan 5, p 40; 19, p 41; Feb 2, p 49; 16, p 36; 23, p 41; Mar 30, p 39

Minnesota Retail Hardware Dealers' Mutual Insurance Association, June 8, p 37

Missouri Retail Hardware Dealers' Association, Feb 23, p 43; Mar 23, p 44; 30, p 39; Apr 6, p 39

Missouri Retail Hardware and Stove Dealers' Association, Apr 20, p 42

Miter box and saw guide, June 8, p 50*

Modern concentration of business and its logical consequences, Feb 23, p 38

Molders' wages advanced, Mar 23, p 4

Molders' wax tapers, Jan 12, p 33

Molding machines:

- Adaptability to the stove trade, June 1, p 20
- Farquhar pulley, Mar 9, p 11*
- Pridmore for molding steam pumps, Mar 23, p 1*

Money (See Finance.)

Monitor, The old style of, May 18, p 22, Sup*

Monongahela Consolidated Coal & Coke Company, June 29, p 5

Moore, V. A., The manufacturers' representative, June 22, p 49

Morrill saw sets, Mar 23, p 47

Morse, S. A., Portrait of, Jan 5, p 20*

Motor vehicles:

- Fisher truck, Jan 26, p 9
- New England Electric Vehicle & Transportation Company, Mar 30, p 2

Possibilities of, Jan 26, p 9

Progress of industry, June 8, p 17

Victor automobiles, Mar 23, p 49*

Motors (See Electric motors.)

Mott, A. C., Molding machines, June 1, p 20

Mouse circus, Lindemann, Mar 2, p 54*
 Muffle and crucible furnace, Combination, Feb 9, p 51*
 Murdock, R. C., The Wisconsin Retail Hardware Association, Feb 9, p 42
 Mutual fire insurance and hardware organizations in the Northwest, Mar 23, p 46
 Myers' bulldozer power pump, Jan 19, p 2*
N.
 Nail clipper, Gem, Apr 20, p 55*
 Nail pullers:
 Millers Falls, Feb 23, p 49*
 Star, May 11, p 48*
 Trojan one-hand, Mar 30, p 50*
 Nail trade in 1898, Jan 5, p 41
 Nailable iron, studding and furring, Mar 23, p 7*
 Nails, Revised price-lists, Jan 19, p 34
 Nash gas engines, Mar 30, p 11*; Apr 13, p 10*
 National Association of Manufacturers, Jan 26, p 21; Feb 2, p 21
 National Bankruptcy Convention, June 8, p 5
 National Enameling & Stamping Company, Feb 2, p 49
 National Founders' Association, Feb 2, p 5; Mar 16, p 8; Apr 6, p 31
 National Tube Company, June 1, p 18; June 15, p 1
 National Wire Company, Apr 6, p 15
 National skeleton drill chuck, Feb 2, p 14*
 National Steel Company, Feb 9, p 21; 16, p 18; Mar 2, p 19; 30, p 31; Apr 6, p 20; 27, p 22
 Natural gas:
 Chicago, June 29, p 3
 Indiana, Feb 16, p 10
 Navy, U. S.:
 Appropriation bill, Feb 23, p 19; Mar 2, p 19, 34; 9, p 34; 16, p 13
 Bids for tools, Apr 27, p 14
 Keegan charges against the navy ordnance bureau, Feb 9, p 6; 23, p 14
 Mannesmann projectile contract, Mar 30, p 10
 Specifications for shrapnel and fuse, Jan 19, p 20
 Navy yard, Brooklyn:
 Improvements, June 1, p 28a
 Machine shop, May 25, p 30
 Power plant, June 22, p 7
 Nernst electric light, Mar 9, p 18
 New Doty combined pump and shear, Feb 16, p 11*
 New England Hardware Dealers' Association, Feb 2, p 48; 16, p 34; Mar 2, p 42; 16, p 42; Apr 6, p 39; 20, p 50; May 18, p 46; June 22, p 36
 New England Iron and Hardware Association, Mar 2, p 43; 16, p 43; 23, p 42; Apr 20, p 40; June 1, p 38
 New York Clearing House and out of town checks, Apr 13, p 17; 27, p 19; June 15, p 38
 New York Hardware Club, Jan 19, p 43; Mar 23, p 44; 30, p 39
 New York State Association of Hardware Jobbers, May 25, p 45
 New York Steel & Wire Company, New plant, June 8, p 19
 New Zealand freight rates, Feb 2, p 51
 Niagara Falls Power Company, New carbide plant, Apr 27, p 9
 Niagara gorge, Ice jams in, Feb 9, p 4
 Niagara Machine & Tool Works:
 Double seaming and wiring machine, Feb 2, p 14*
 Power punch, Mar 16, p 15*
 Niagara whirlpool power, Jan 26, p 9
 Nicaragua Canal, Cost of, June 8, p 18
 Nickel, chromium and silicon steels, Feb 2, p 6; 9, p 10
 Nickel steel armor patents, Feb 9, p 8
 Niles-Bement-Pond Company, June 15, p 34
 Nipple grip, Neverslip, Jan 26, p 51*
 Non-union men, Rights of, in Illinois, Jan 12, p 18
 Nordenstrom, G., The use of magnetic instruments for discovering magnetic ore deposits, Apr 13, p 6*

Norman, P. L., Local competition, Feb 16, p 42
 North Dakota Retail Hardware Association, Jan 26, p 46; Feb 2, p 48; 23, p 35
 Northwestern Retail Hardware Association and Spalding's policy, May 18, p 51; June 1, p 40; 15, p 39; 29, p 45
 Nut crack, pick, holder and tray, June 1, p 45*
 Nuts and bolts in England, Jan 19, p 3
O.
 Obituaries:
 Adair, J. A., May 4, p 18; Ayer, H. C., Jan 19, p 17
 Bartlett, D. L., May 18, p 23; Baslington, G. O., Mar 9, p 16; Bauer, C. A., June 29, p 21; Bennett, W. H., Jan 26, p 20; Bent, S. S., Jan 5, p 20; Biggers, S. L., May 11, p 22; Blair, William, May 18, p 49; Bolinckx, Henry, Mar 30, p 19; Bowles, P. P., Mar 23, p 25; Boynton, G. C., June 22, p 33; Bradley, David, Mar 2, p 22; Britton, J. B., Feb 2, p 26; Brown, Felix, Apr 13, p 18; Bullock, M. C., Jan 19, p 17
 Cadwallader, C. W., Jan 19, p 18;
 Capp, Jacob, Jan 19, p 18; Card, S. W., Feb 16, p 17; Carpenter, E. S., Mar 2, p 22; Carpenter, W. H., May 18, p 23; Carter, Frank, Mar 30, p 18; Chadwick, H. S., Mar 9, p 17; Chaffee, E. W., June 22, p 33; Chalfant, J. W., Jan 5, p 21; Chapman, H. W., Feb 2, p 26; Clare, J. D., Jan 5, p 20; Clark, C. E., Mar 23, p 25; Cochran, P. G., June 8, p 19; Colburn, W. C., Mar 23, p 25; 30, p 18; Cole, B. J., Jan 26, p 20; Coleman, Bannen, Jan 5, p 20; Cone, E. G., Jan 5, p 20; Conger, A. L., Mar 2, p 22; Cook, Frederic, Mar 9, p 16; Coombe, Thomas, Jan 12, p 14; Crawford, J. P., May 18, p 23; June 1, p 17; Curr, D. B., Mar 2, p 22
 Daly, Charles, Jan 19, p 36; Daniels, H. A., June 29, p 21; Dashiell, R. B., Mar 16, p 19; Davitt, H. F., May 11, p 22; Denniston, James, Jan 19, p 17; Dickey, W. C., Apr 27, p 19
 Eastword, Benjamin, May 4, p 18; Eberly, Isaac, Feb 16, p 17; Egan, J. H., Jan 5, p 20; Emerick, J. A., Mar 2, p 21; Eyre, H. C., Mar 16, p 19
 Faux, William, Mar 9, p 17
 Gardner, N. G., Feb 2, p 26; Geist, F. L., Feb 23, p 18; Gray, Joshua, June 29, p 21; Greene, Gen. G. S., Feb 2, p 26; Grubb, E. B., Jan 19, p 18
 Hagar, G. L., Mar 16, p 19; Harrington, E. L., Mar 23, p 25; Harris, D. W., Jan 26, p 20; Harrison, J. L., Mar 5, p 20; Harwood, N. A., June 29, p 21; Haskell, L. F., Feb 23, p 18; Hawley, M. C., Jan 19, p 36; Haws, A. J., Mar 16, p 19; Hayden, E. S., Feb 23, p 18; Head, Jeremiah, Mar 30, p 19; Hill, C. L., May 25, p 27; Hobart, Thomas, Mar 9, p 16; Hodgman, G. P., Jan 5, p 20; Hodson, J. L., Apr 20, p 16; Hogue, P. P., Mar 30, p 19; Howe, W. R., June 22, p 33; Hoyt, H. L., June 15, p 20; Hunt, A. E., May 4, p 18
 Isbester, C. B., Feb 23, p 18
 Jackson, J. H., Mar 30, p 18; Jackson, Matthew, Jan 19, p 18; James, Reese, Apr 20, p 15; Jenkins, D. S., Mar 2, p 22; Johnson, L. G., June 8, p 18; Johnson, S. C., Jan 12, p 14; Johnson, W. G., Mar 9, p 16
 Kaesberg, Adolph, May 4, p 18; Kauffman, A. J., June 1, p 17; Keith, L. N., Apr 27, p 19; Kelley, D. T., May 11, p 22; Kelley, Fred., Jan 5, p 20; Kimball, Hiram, Mar 16, p 19; Kline, J. F., Feb 23, p 18; Knigh, E. H., May 11, p 22; Kreusi, John, Mar 2, p 22

Obituaries (Continued):
 Lampton, W. H., Jan 26, p 20; Lane, J. G., June 8, p 41; Lees, James, Feb 2, p 26; Lissberger, Lazarus, Jan 26, p 20; Lowe, James, Apr 20, p 15; Lyon, J. S., Jan 19, p 18; Lyon, S. S., Jan 19, p 17
 Macbeth, John, Feb. 23, p 18; McClure, Joseph, Apr 20, p 15; McHenry, A. R., Jr., Mar 2, p 22; McMillan, Joseph, Feb 2, p 26; McWilliams, J. W., Mar 9, p 40; Marshall, H. G., Mar 9, p 17; Marvin, Gen. S. E., Jan 26, p 20; Mason, J. P., Mar 9, p 16; Mason, T. F., June 8, p 18; Maugher, J. N., Jan 5, p 20; Merrill, J. B., Jan 5, p 21; Middleton, W. B., Mar 16, p 19; Miller, Lewis, Mar 2, p 21; Mitchell, C. M., Mar 16, p 19; Montgomery, Samuel, June 15, p 20; Moore, J. H., May 25, p 27; Morgan, F. H., June 29, p 21; Morse, S. A., Jan 5, p 20; Mueller, Louis, Jan 26, p 21
 Neal, William, Feb 16, p 17; Newcombe, G. L., Mar 2, p 22; Newell, J. S., May 25, p 27; Nye, A. T., Jan 19, p 18
 Parke, S. R., Jan 19, p 17; Parsons, C. W., Jan 5, p 20; Peacock, George, Apr 13, p 18; Penn, George, Jan 26, p 20; Perry, E. Y., May 25, p 27; Pitkin, L. M., May 4, p 18; Platt, W. H., Jan 19, p 18
 Reed, J. H., Mar 16, p 19; Rice, J. V., Jan 19, p 18; Richards, R. F., Mar 9, p 16; Roe, C. S., Apr 27, p 19
 Seeretan, M., Mar 16, p 15; Semple, James, May 25, p 27; Smack, Robert, Jan 5, p 20; Smith, W. A., Mar 30, p 18; Smyser, H. E., Mar 16, p 19; Southard, W. D., May 18, p 23; Spang, Jacob, Apr 27, p 19; Sterick, George, May 11, p 22; Sterling, A. P., Feb 23, p 18; Stetler, Abner, Jan 19, p 17; Stone, H. D., Apr 27, p 19; Strang, S. B., May 25, p 27
 Taber, E. S., Mar 16, p 19; 23, p 25; Thomson, Frank, June 8, p 18; Tilghman, R. A., Mar 30, p 18; Tougas, L. T., Jan 12, p 14
 Ullery, S. W., June 22, p 33
 Van Bergen, J. B., May 4, p 18
 Warrington, E. R., Apr 13, p 18; Weir, F. C., Mar 16, p 19; Wells, Moses, Jan 5, p 21; White, W. C., Jan 26, p 21; Winne, F. N., June 8, p 18; Wood, Thomas, May 4, p 18; Wood, W. D., Jan 12, p 14; Woods, E. P., Jan 19, p 17; Woods, James, Apr 20, p 16; Woodruff, W. W., Jan 5, p 21; Wren, J. Y., June 29, p 21
 O'Brien, J. E., Address of, Feb 23, p 41
 Ohio Hardware Association, Feb 2, p 48; Mar 2, p 44; 23, p 44
 Oil cloths, Yard marking of, Mar 30, p 40
 Oil cup, Egan automatic, Mar 30, p 5*
 Oil heater, Miller, June 22, p 54*
 Oil injector, Urquhart, Apr 13, p 11*
 Oil stone, Turkish emery, Mar 23, p 50*
 Oiler, Combination safety, Mar 23, p 50*
 Old Meadow Rolling Mill Company, Feb 23, p 20
 Oliver Iron & Steel Company, Jan 26, p 13*
 Oliver Iron Mining Company, Apr 27, p 18
 Oliver wood trimmers, June 29, p 13*
 O'Neill, Captain, High explosives in guns and shells, Feb 23, p 8
 Orton friction clutch for small powers, Mar 2, p 5*
 Owen, O., Mar 23, p 21
P.
 Pacific Coast news, Jan 26, p 13; Feb 9, p 19; Mar 2, p 14; 16, p 12; 30, p 14; Apr 13, p 33; May 11, p 10; June 1, p 31; 22, p 14
 Pacific Retail Hardware Association, Feb 2, p 49; 9, p 48; Apr 6, p 40
 Padlocks:
 Chapman cast and wrought iron, Jan 26, p 50

Padlocks (Continued):
 Imperial, Mar 2, p 54*
 Mallory-Wheeler, Jan 26, p 50
 Nickeled, Mar 9, p 48*

Palmer, L. E., Middletown, Conn., Jan 19, p 42

Panama Canal commission, June 15, p 1

Paper money and gold exports, June 8, p 16

Paris Exhibition, 1900:
 Appropriation, Feb 16, p 1
 Civil engineering and transportation, June 22, p 17
 Plan of, Feb 23, p 15, Sup.
 Progress at, Mar 9, p 2; May 18, p 37

Park Steel Company, Mar 16, p 10

Parlin, W. D., Address of, Apr 20, p 50

Patent laws of U. S. extended, Apr 20, p 28

Patent property, Conditional nature of, Apr 13, p 13

Patents, Nickel steel armor, Feb 9, p 8

Pennsylvania anti-trust legislation, June 29, p 10

Pennsylvania Steel Company, Mar 16, p 34

Peoria Steel & Iron Works, Jan 26, p 9

Personal in business, Passing of the, June 1, p 39

Peters, Samuel, Manufacture of bar iron, May 25, p 14

Petroleum engine, Capitaine, Mar 9, p 8*

Philadelphia Exposition of 1899, Jan 12, p 11; May 4, p 11

Philadelphia Foundrymen's Association, Jan 12, p 6; Feb 9, p 14; Mar 9, p 3; Apr 13, p 8; June 15, p 4

Philadelphia Hardware Merchants' and Manufacturers' Association, Banquet to W. W. Supplee, Jan 26, p 38

Philadelphia ring oiling bearings, Feb 9, p 3*

Pig forceps, Reimers' superior, Jan 26, p 50

Pig iron:
 Analysis of, by E. E. Johnston, May 18, p 8; June 8, p 18
 Charcoal pig iron versus coke iron, Feb 16, p 16
 Deceptive fracture of, May 25, p 21
 Freight rates on, Feb 9, p 19
 Illinois Steel Company, Jan 5, p 7
 Increase in melt, May 4, p 31
 Limestone in making iron, June 1, p 5
 Selling by warrant, June 17, p 28*
 World's consumption of pig iron in the steel industry, June 1, p 14

Pig iron production:
 British, 1898, Mar 16, p 8
 Decline in furnace stocks, Feb 16, p 19; Mar 9, p 33
 Increase in, Jan 12, p 22; Mar 30, p 33; May 11, p 19; June 15, p 21
 Minnesota bonus for, Feb 2, p 11; 9, p 7
 Recovery in, Apr 13, p 19
 Statistics, 1897-99, Feb 2, p 40; May 25, p 23

Pipe:
 Flanges and their bolts, May 18, p 15*
 Lap welded for South America, June 15, p 1*

Wrought iron, Defects in threads on, Mar 9, p 13

Pipe consolidation, Feb 9, p 22; Mar 30, p 31; Apr 13, p 8; May 4, p 13

Pipe threading and cutting machine, Merrell, May 4, p 11*

Pipe wrenches, Vulcan chain, Apr 13, p 12*

Pittsburgh as a manufacturing center, May 18, p 24

Pittsburgh Foundrymen's Association, Apr 27, p 33

Pittsburgh Horseshoe Company, Jan 12, p 46

Pittsburgh Reduction Company, Jan 19, p 30

Pittsburgh Steel Foundry Company, Apr 6, p 7

Planing machines, Notes on, Jan 26, p 10

Plumbers' supply combination, Jan 12, p 5; Feb 2, p 8; 16, p 18; Apr 27, p 12; May 18, p 3; June 22, p 13

Plunger direct acting hydraulic elevator, Jan 19, p 7*

Pneumatic Crane Company, June 1, p 5*

Pneumatic tools, Jan 12, p 2

Poland, J. W., Address of, Apr 20, p 44*

Polishing heads, Feb 2, p 61*

Porto Rico:
 Mineral resources, Mar 16, p 9
 Tariff, Jan 26, p 16; May 4, p 12

Posts, Kolomo steel, Apr 6, p 49*

Potato and apple cutter, Rollman, Apr 27, p 45*

Potato fork, Dig-Ezy, June 15, p 47*

Power, Economy in small, Apr 6, p 8

Pratt & Whitney Company:
 Officers, Mar 30, p 15
 Positive driving drill chuck, Feb 2, p 13*

Taps, Apr 6, p 7*

Pressed Steel Car Company, Jan 19, p 30; Feb 2, p 41; 9, p 5; Mar 2, p 16; 30, p 2; Apr 13, p 9; 20, p 20

Presses:
 Adriance inclinable open back, Mar 30, p 1*

Bliss:
 Armature disk, Apr 13, p 8*
 Inclinable power, Mar 9, p 1*
 Special with electric motor, Feb 9, p 13*

Pressure and speed governor, Dean, June 1, p 4*

Pressure regulator, D'Este & Seeley air spring, May 25, p 6*

Price cards, Roots', Mar 16, p 43

Prices:
 Advancing, Mar 30, p 40
 Boom of 1879-80, Mar 23, p 12
 Bridge builders and the prices of materials, June 1, p 2

Consolidations and prices, Apr 6, p 17

Hardware prices, Delivered, Feb 9, p 41

Jobbers, Mar 23, p 46

Prices getting too high, May 4, p 16

Profits and prices, Mar 16, p 17

Rubber goods higher, Apr 20, p 41

Timely caution, May 11, p 16

Printing by means of Roentgen rays, Feb 9, p 1

Pruning shears, Henry Mfg. Company, Apr 20, p 53

Puddling and finishing mills, New scale, June 15, p 19

Pulley molding machine, Mar 9, p 11*

Pullman sold, Jan 12, p 13

Pump rods, Deep well, May 18, p 14

Pumping engines:
 Record breaking high duty, Mar 30, p 9
 Riedler, for Niagara, Apr 27, p 1*

Pumps:
 Hartford water motor, Feb 23, p 13*
 Manistee air, Apr 27, p 1*
 Molding machine for steam pumps, Mar 23, p 1*

Myers', Jan 5, p 54*; Jan 19, p 2*
 Nash triplex pump and gas engine, Apr 13, p 10*

Perfection water elevator and purifying pumps, Apr 6, p 44

Quincy steel pump and tubing, Jan 5, p 49

Punch and rivet set combined, Mar 9, p 49*

Punching machines:
 Doty, Combined with shear, Feb 16, p 11*

Niagara power, Mar 16, p 15*

Rudolphi & Krummel, Mar 16, p 11*

Puritan Coke Company, Pittsburgh, Jan 12, p 33

Pyrometer, Brown, Apr 6, p 10*

Q.

Quereau, C. H., The Allen valve for locomotives, May 25, p 4*

R.

Railroad building, Restriction of, Mar 23, p 13

Railroads:
 Erie, Coalting station, Apr 13, p 1*
 Receiverships of 1898, Jan 12, p 10
 Trans-Siberian Railway, June 1, p 19

Rails:
 Production of Bessemer, Mar 2, p 2
 Russian contract, Apr 13, p 18

Randolph & Clowes moving from Naugatuck Valley, Mar 16, p 32

Rat trap, Dead-easy, Jan 5, p 52*

Ratchet, Buckeye steel fence, Mar 9, p 52*

Ratchet counter, Veeder, May 4, p 50*

Razor, Ran-Tan-Ka-Rus, Apr 13, p 45*

Razor paste, Apr 20, p 54*

Recharging device, Storage battery, Apr 27, p 43*

Refrigerators:
 Improved American, Feb 9, p 50
 Manila, Proposed erection at, Feb 2 p 5

Reitz, W. C., Dinner to, Jan 26, p 48

Reloading tool, June 15, p 48*

Republic Iron & Steel Company, Apr 6, p 18; 13, p 30; 20, p 28; 27, p 18; May 18, p 10; June 1, p 28b

Retailers, (See Hardware merchants.)

Richards, F. H., The conditional nature of patent property, Apr 13, p 13

Rivet set and punch combined, Mar 9, p 49*

Riveters, Peerless hand, Jan 26, p 51*

Ritter, J. H., Address at Philadelphia, Jan 26, p 39

Roads, Steel wagon tracks, May 25, p 24

Roberts, C. S., Mar 23, p 17*

Roberts Hardware Company, Apr 6, p 41

Robins belt conveyor, Apr 20, p 12*

Rockefeller ore interests, May 11, p 12

Roentgen rays, Manifold printing by means of, Feb 9, p 1

Rogers Screw Company, Mar 9, p 40

Roller bearing, Hyatt, Feb 23, p 12*

Rolling mill engines, German, June 8, p 8*; 15, p 6; 22, p 8*

Rolling mill fly wheels, May 18, p 4*

Rolling mill scale, Western, Apr 20, p 14

Rolling mills, Observations of an American engineer, Mar 30, p 4

Rolls, Design of roughing, Mar 16, p 2*

Root's price cards, Mar 16, p 43

Rope, Wire, Jan 19, p 8; Mar 2, p 15*

Rope drive, Two thousand horse-power, Mar 2, p 13*

Rowe, W. H., Mar 23, p 19*

Rubber goods, Advance in price, Apr 20, p 41

Rubber consolidation, Jan 26, p 2

Rudolphi & Krummel punching press, Mar 16, p 11*

Russell & Erwin Mfg. Company, Mar 30, p 44

Russian iron industry, June 29, p 20

Rust preventive, Mannocitin, Mar 16, p 46

S.

Safe, Testing manganese steel, Mar 23, p 9

Safe breaking as a fine art, Jan 12, p 10

Safety Emery Wheel Company's machine for grinding plows, &c., Mar 30, p 3*

St. John Iron and Hardware Association, Jan 26, p 46

St. Louis Founders' Association, May 25, p 15

St. Louis tapping machine, May 11, p 13*

Salesmen:
 In a rut, Jan 19, p 40
 Jobber's salesman's relations to his house, Jan 12, p 44
 Judgment and discretion, Apr 27, p 37

Kindliness and courtesy, May 18, p 50

Loyalty of, Feb 16, p 57

Money matters, Feb 2, p 53

Oldest hardware traveler, Jan 12, p 45*

Other hindrances, Mar 23, p 45

Samples and their value, Apr 13, p 38

The buyer out, Mar 9, p 41

Trade's opinion of, Apr 27, p 36

Traveling expenses, June 15, p 40; 22, p 37

(See also Business methods; Hardware merchants.)

Sample holder, Klondike, Feb 23, p 47

San Francisco News, (See Pacific Coast news.)

Sargent, G. H., President of New York Hardware Club, Mar 30, p 42*

Sash pulley, Fox No. 5, Apr 6, p 47*

Saw blades, Butcher, in coils, May 4, p 49

Saw frame, Adjustable, Mar 30, p 48*

Saw handle, Neverslip key hole, Feb 9, p 50*

Saw sharpening machine, Jan 19, p 13*

Saws:

- Adjustable compass, Mar 30, p 50*
- Disston, Mar 16, p 46; Apr 13, p 45*
- Goodell power hack, Mar 2, p 15*
- Universal power hack, May 4, p 6*

Scale, Wage. (See Wages.)

Scales:

- Device for manipulating, Jan 19, p 12*
- Pelouze, Jan 12, p 53*; Apr 6, p 48*

Schoen Pressed Steel Company and Fox Pressed Steel Company, Consolidation of, Jan 12, p 31

Scoville, W. L., Store window washing, Apr 20, p 37

Scrap iron trust, Feb 23, p 16

Screen doors, Phillips style, Jan 12, p 51*

Screw driver bits, Samson, May 4, p 50*

Screw drivers:

- Dandy, June 1, p 43*
- Samson, Feb 16, p 58*

Scythe stone, Gem corundum, Jan 5, p 53*

Seaman, J. S., May 25, p 31*

Seaming machines:

- Niagara double, Feb 2, p 14*
- Rudolph & Krummel, Mar 30, p 8*

Search, T. C., Spanish-American commerce, June 15, p 3

Seasoning wood by electricity, Feb 23, p 7

Sennett rocking grate, Mar 23, p 5*

Separator, Hutchison steam and oil, Feb 16, p 8*

Shaft key seater, Burr portable, Apr 6, p 12*

Sharpening machine, Universal, Jan 5, p 49*

Shearing machines:

- Bertsch universal plate, Jan 5, p 17*
- Doty, Combined with punch, Feb 16, p 11*

Sheave, Wilcox, Crittenden & Co., Feb 2, p 16*; 23, p 47

Sheet mills scale, June 22, p 6

Shelby Steel Tube Company, Mar 30, p 5

"Shelby three" trolley pole, Feb 9, p 7*

Shelf boxes, Heller's steel, Jan 19, p 44

Shells:

- High explosives in, Feb 23, p 8
- Primrose club, Feb 9, p 51
- Shepard, Sidney & Co., Jan 26, p 49; Mar 9, p 44

Sherrill's hardware store, Arrangement of, Mar 9, p 43*

Shiffler Bridge Company, Apr 6, p 30

Shingler, An English, Jan 26, p 17, Sup

Shipbuilders' consolidation, Mar 23, p 35; 30, p 31; Apr 20, p 28; 27, p 1

Shipbuilding:

- Allied industries and shipbuilding, Apr 27, p 16
- American, 1898, June 29, p 7
- British, in 1898, June 1, p 22
- Growth of ocean commerce, Jan 19, p 15
- Naval vessels, Progress of building, Apr 13, p 10
- Russian, Apr 13, p 18

Shipping:

- Great Lakes and the iron trade, May 4, p 8
- Lake gossip, Apr 6, p 11
- Ocean shipping and the export trade, Jan 12, p 3; 19, p 15
- Shipping bounties in France, Failure of, Feb 23, p 17

Shoenberger Steel Company, Mar 9, p 36

Shop floors, Method of laying brick, Mar 16, p 31

Shovels, Kohler anti-combine, Mar 16, p 46; Apr 20, p 53

Shrapnel and fuse, Specifications for, Jan 19, p 20

Sleeks & Nutting Company, Mar 23, p 47

Silver production, United States, 1898, June 22, p 6

Simonds Mfg. Company, Jan 26, p 47

Slabbing mill of Illinois Steel Company, June 29, p 1*

Slag cement manufacture in Alabama, Mar 30, p 34

Slicer, Racine, May 25, p 51*

Smith, E. J., Industrial combinations, June 29, p 34

Smith, J. L., June 8, p 39*

Smoke, Soft coal nuisance, June 15, p 18

Smoke preventer, Lowe, Jan 12, p 8*

Smythe, W. G., Hardware trade in the United States, June 8, p 42

Snaps, Billings' improved, Jan 12, p 51*

Snips, Berlin forged handle, Jan 19, p 46

Snoqualmie Falls Power Plant, Washington, Jan 26, p 8

Snow, W. A., & Co., Apr 6, p 44

South American Iron Works, Apr 20, p 8

South Dakota Retail Merchants' Association, Mar 30, p 38

South Chicago Furnace Company, Mar 30, p 34

Southern Hardware Jobbers' Association, Mar 30, p 39; Apr 20, p 39; May 25, p 46; June 1, p 39; 22, p 38

Southern Indiana Retail Hardware Dealers' Association, May 11, p 40; June 8, p 41

Southington Cutlery Company, Jan 5, p 49

Spalding policy, Jan 5, p 43; 12, p 38; 19, p 38; Feb 2, p 50; Mar 30, p 40; Apr 27, p 40; May 4, p 44; 11, p 40; 18, p 51; June 1, p 40; 15, p 39; 29, p 45

Spang-Chalfant Company, June 15, p 24

Spanish-American commerce, June 15, p 3

Speculation in industrial stocks, Jan 26, p 19; Apr 13, p 15; June 8, p 15, 30

Speer, C. E., Hardware expansion, June 22, p 47

Spelter production, World's, 1896-98, Mar 16, p 19

Spikes, Diamond, Feb 23, p 3*

Spoke and handle lathe, Defiance, May 18, p 7*

Spousel hardening apparatus, June 8, p 12*

Spoon guard, Zenith, Apr 13, p 45*

Spoons:

- Astoria design, Apr 20, p 58*
- Niagara ice cream soda, Apr 6, p 46

Sportsmen's Exposition, New York City, Feb 23, p 44; Mar 9, p 40; 16, p 44

Sprayer, Gould's Kerowater, Mar 9, p 52*

Springfield oscillating surfacer, Feb 9, p 1*

Springs, Economy bolster, Jan 19 p 46

Standard Chain Company, May 25, p 49

Standard Oil Company enter incandescent light business, Apr 13, p 30

Standard Metal Company, Apr 27, p 33; May 4, p 19; 25, p 40

Standard Underground Cable Company, Pittsburgh, Mar 2, p 15

Stanley Rule & Level Company, Jan 5, p 47

Staple puller, Wire fence, Mar 16, p 48*

Steam condensing plants, Central, Apr 20, p 3*

Steam pump molding machine, Pridmore, Mar 23, p 1*

Steamship brake, Czvetkovich, Mar 16, p 15

Steamships:

- American, Largest built, Mar 2, p 5
- Five hundred-foot lake vessel, June 15, p 2
- Line direct to Northern Russia, Jan 26, p 48; Apr 6, p 41
- "Oceanic," Jan 19, p 2

Steel:

- Carbide of silicon, Use of, June 22, p 5
- England's export trade, Feb 16, p 6
- Influence of arsenic on the mechanical properties of steel, Apr 13, p 5

Steel (Continued):

- Manganese in the acid open hearth process, Mar 30, p 13
- Nickel chromium and silicon steels, Special, Feb 2, p 6; 9, p 10
- Time of testing, Jan 12, p 2
- Treatment of tool steel, Mar 16, p 11
- Weight of steel sheets, Mar 30, p 34
- (See also Iron.)

Steel amalgamation (See Iron and Steel consolidation.)

Steel production:

- Argentine Republic, Mar 23, p 7
- Bessemer steel ingots, 1898, Mar 2, p 2
- Decade of progress in reducing costs, Mar 2, p 6
- England, 1898, Mar 23, p 4
- Open hearth, 1898, Mar 30, p 2, 16
- Sheet steel vs. brass, Mar 30, p 19; Apr 6, p 34
- Swank's 1898 figures, May 25, p 28
- World's consumption of pig iron in the steel industry, June 1, p 14
- (See also Iron production.)

Steel girders burned by an electric arc, Mar 30, p 3

Steel track wagon roads, May 25, p 24

Sterilizer, Waterhouse-Forbes, Mar 16, p 49

Stone, E. E., Mar 23, p 20*

Store window washing, Apr 20, p 37

Stores:

- Department, How to compete with, Feb 9, p 46
- Sherrill's, Arrangement of, Mar 9, p 43*

Stove boards:

- Aluminum finish, Apr 27, p 46*
- Antique coppered steel, May 11, p 47*

Stove makers' consolidation, May 18, p 38

Stove pipe elbow, Perfect one-piece, May 11, p 48*

Stove trade:

- Advance in prices, Mar 16, p 7
- United States statistics, June 29, p 14

Stover Novelty Works, June 8, p 5; 22, p 7

Straits Settlements and Java as they appeared to an American manufacturer, May 4, p 45

Strikes:

- Building trade, Chicago, Apr 27, p 17
- Iron miners', Apr 6, p 30
- Liability of cities, Feb 23, p 18
- Molders', at Chicago, May 25, p 29
- Studding, Nailable iron, Mar 23, p 6
- Stupakoff comparometer, Apr 6, p 14*
- Sturtevant electric fans, Special types of, Jan 19, p 9*; Feb 9, p 9*

Supplee, W. W., Testimonial banquet to, Jan 26, p 38*, 42, 45

Surface gauge, Sawyer, Feb 9, p 52*

Surfacer, Springfield oscillating, Feb 9, p 1*

Susquehanna Iron & Steel Company, June 1, p 13

Swinburne, James, The Nernst electric light, Mar 9, p 18

Swing, Kingman steel, June 1, p 45*

T.

Tack hammer and puller, Billing's, Jan 12, p 53*

Tack puller, Grant, Feb 2, p 56

Tacks, Revised price-lists, Jan 19, p 34

Tanite Co.:

- Emery grinder, Apr 6, p 13*
- Polishing lathe, Apr 6, p 13*

Tapping machine, St. Louis, May 11, p 13*

Taps, Pratt & Whitney, Apr 6, p 7*

Tariff:

- Cuba, Jan 5, p 18
- Drawback decision, Jan 16, p 17
- Hawaii, May 4, p 12
- Making a club of the tariff, June 1, p 16
- Porto Rico, Jan 26, p 16; May 4, p 12
- Trade, trusts and tariffs, June 15, p 13, 17
- Wire rope, Jan 19, p 8

Taxation of productive industries, Excessive, Mar 9, p 15

Taylor, T. H., Mar 23, p 20

Telephone book holder, Tatum's, Mar 9, p 49*

Telephone vs. telegraph, Apr 13, p 12
 Telegraphy, Marconi's wireless system, Apr 13, p 3; 20, p 9.* 16
 Tenplates, New method of boring, milling and tapping machine frames, Jan 26, p 3*
 Tennessee Coal, Iron & Railroad Company's report for 1898, Mar 23, p 24
 Testing lead tin and lead antimony alloys, May 11, p 12
 Texas Hardware Jobbers' Association, Apr 6, p 39; May 11, p 39
 Texas Retail Dealers' Hardware and Implement Association, June 29, p 40
 Thomas, E., Apr 20, p 43
 Threads on wrought iron pipe, Defects in, Mar 9, p 13
 Thuroscope, Bayer, Mar 30, p 48*
 Tie plate, Oliver steel, Jan 26, p 13*
 Time recorders, Chicago, Apr 27, p 14
 Tin plate production, American, Apr 6, p 19
 Tin plate scale of wages, May 25, p 31; June 15, p 11; 29, p 21
 Tone, F. J., Carbide of silicon, June 22, p 5
 Tool brackets, Herrick's, Feb 2, p 57*
 Tool rack, Herrick's, Feb 2, p 57*
 Torches, Queen brazing, Feb 2, p 61*; Apr 6, p 46*
 Trace holder, Safety, June 1, p 44*
 Trade:
 French colonial, Jan 19, p 5
 Rio Grande do Sul, Brazil, Apr 27, p 12
 Spanish-American commerce, June 15, p 3
 U. S. and new colonies, Mar 2, p 20; Apr 13, p 10
 (See also Export trade.)
 Trade catcher, A., Apr 20, p 38*
 Trade, trusts and tariffs, June 15, p 13; 17; 22, p 16, 18
 Trade winning methods, May 4, p 42; 11, p 42; 18, p 48; 25, p 48; June 8, p 47; 15, p 43; 29, p 43
 Transformer design and operation, Jan 5, p 16
 Transom lifters and openers, Dickson, Apr 6, p 44
 Trans-Siberian Railway, June 1, p 19
 Trap, Egan inverted valve steam trap, Apr 6, p 12*
 Traps, Animal, May 4, p 50*
 Tree guard, Ohio anchor, Feb 2, p 58*
 Trolley pole, "Shelby three," Feb 9, p 7*
 Trousers rack, Yankee, Mar 9, p 50*
 Trowel, Avery forged steel, May 4, p 50*
 Truck, Fisher automobile, Jan 26, p 9
 Trusts:
 Capitalizing our supremacy, Feb 16, p 16
 Combinations and trusts, June 29, p 47
 Duty of great consolidations, Mar 9, p 15
 Fixed charges and consolidation, May 18, p 20
 Indiana anti-trust decision, June 15, p 5; 22, p 15
 Industrial combinations, Mar 23, p 12; June 1, p 10; 22, p 15; 29, p 34
 Industrial commission to investigate trusts, Apr 13, p 12
 Industrial organizations, Strength of, May 4, p 16
 Law and industrial combinations, June 22, p 45
 Manufacturer's view of consolidations, Mar 16, p 44
 Michigan anti-trust law, June 22, p 4
 Passing of the personal in business, June 1, p 39
 Pennsylvania anti-trust legislation, June 29, p 10
 Prices and consolidations, Apr 6, p 17
 Reduction of expenses by consolidations, May 25, p 27
 Trusts (Continued):
 Regulation by law, Jan 12, p 16
 Texas anti-trust law, June 8, p 20
 Trade, trusts and tariffs, June 15, p 13, 17; 22, p 16, 18
 (See also Brass; Copper; Wire, etc.)
 Tube consolidation, June 1, p 18
 Tumbling valve, Henderson steam heated, Jan 5, p 16*
 Tuyere, Copper blast furnace, Destruction of, Feb 16, p 13*
 Tyler Charcoal Iron Tin Mills, Apr 6, p 30
 Tyler's wire specialties, Mar 9, p 49*
 U.
 Umbrella stands, Venetian, Apr 27, p 42
 Union Malleable Iron Company, Mar 30, p 8
 Union Steel & Chain Company, Apr 27, p 29
 United States Cast Iron Pipe & Foundry Company, Feb 9, p 22; Mar 30, p 31
 Urquhart oil injector, Apr 13, p 11*
 Utilization of furnace gas for power, June 29, p 6, 19
 V.
 Vail, J. H., Cooling tower and condenser installation, Feb 2, p 1*
 Valve, Allen, for locomotives, May 25, p 4*
 Ventilator, Perfection, May 4, p 49*
 Vises, Lewis quick-acting, Mar 30, p 49*
 Vogt, C. A., Mar 23, p 21*
 Vollkommer, Josef, Enameling as an industry, Mar 23, p 10
 Vrooman furnace arch brick, Feb 9, p 5*
 Vulcan chain pipe wrench, Apr 13, p 12*
 W.
 Wages:
 Amalgamated Association scale, May 25, p 13
 Carnegie Steel Company, Apr 6, p 31
 Coke workers, Advance, May 4, p 29
 Conferences, June 8, p 7, 20
 Molders' wages advance, Mar 23, p 4, 11
 Puddling and finishing mill scale, June 15, p 19
 Rolling mill scale, Apr 20, p 14
 Sheet mills scale, June 22, p 6
 Tin plate scale, May 25, p 31; June 15, p 11; 29, p 21
 (See also Labor.)
 Wagon roads, Steel track, May 25, p 24
 Wagons:
 Ideal buggy, June 1, p 45*
 Steel, Apr 27, p 42*
 Walkley, W. R., Address of, June 22, p 43
 Wanner, Cast iron pipe and consolidation, Apr 13, p 8
 Warships:
 Engines of new cruisers, May 18, p 12
 Feed water regulators on ships, Mar 16, p 6*
 Old type of monitor, May 18, p 22, Sup.*
 Plans of new, Apr 20, p 17; May 18, p 40
 Torpedo boat "Stringham," June 8, p 11
 Washing machines:
 Benbow rotary, Mar 2, p 55*
 Boss, Mar 9, p 52*
 Cyclone, Mar 2, p 54*
 Happy Home, June 1, p 43*
 Round Western, Mar 2, p 55*
 Western rotary, Apr 6, p 46*
 Water filter, Champion, Mar 23, p 51*
 Water motor air compressor, Worthington, Mar 16, p 9*
 Water supply, Brooklyn, Legal decision, Mar 2, p 21
 Water works construction, Jan 26, p 2
 Waterhouse-Forbes sterilizer, Mar 16, p 49*
 Watson, F. L., Mar 23, p 21*
 Wax tapers, Molders', Jan 12, p 33
 Weaners, Tyler, Feb 23, p 48*
 Weights and measures, Metric system of, Feb 2, p 24
 Weights of aluminum, steel and copper, Mar 30, p 34
 Wellman open hearth furnace, May 25, p 16*
 Wells & Nellegar Company, Feb 16, p 58
 Welsh tin plate combination, June 15, p 4
 Western Electric Company, Jan 19, p 11
 Western Foundrymen's Association, Jan 12, p 15; Feb 23, p 10; Mar 9, p 2
 Wheat, The damage to, Apr 27, p 17
 Wheeler, E. C.:
 Coke and charcoal iron for malleable castings, Mar 30, p 30; Apr 6, p 5
 Malleable cast iron, Mar 16, p 2; 23, p 4
 Wheels, Metal, Apr 27, p 42*
 Whiffletree hook, Wallace safety, Apr 20, p 58*
 Whirlpool power, Niagara, Jan 26, p 9
 Whitaker Iron Company, Jan 12, p 21
 Wiley, W. H., The old type of monitor, May 18, p 22, Sup.*
 Wind mill regulator, Acme, Jan 26, p 54*
 Window display:
 Bicycle as a trade winner, May 25, p 48*
 Locomotive, May 4, p 44
 Mrs. Santa Claus, Apr 13, p 41*
 Tin cycler, Mar 30, p 44*
 (See also Advertising.)
 Window screen, Phenix, Apr 6, p 50*
 Window washing, Apr 20, p 27
 Window weight, Walda improved sectional, Mar 30, p 50*
 Window locking pivot, Mar 23, p 49
 Wire charter, The, Jan 19, p 18
 Wire Cloth Manufacturers' Association, Mar 16, p 43
 Wire consolidation, Jan 12, p 19; 19, p 20; 26, p 33; Feb 9, p 31; 16, p 18; Mar 23, p 15*
 Wire forming and staple machine, Stover, June 22, p 7*
 Wire gauge, Stubbs' pattern, Jan 19, p 46
 Wire rod production, U. S., 1898, Apr 27, p 2, 17
 Wire rope, Duty on, Jan 19, p 8
 Wire rope filler, Mar 2, p 15*
 Wire straighteners and cutters, June 1, p 13*; 8, p 5*
 Wire trade, Jan 5, p 41; Apr 20, p 15
 Wisconsin Retail Hardware Association, Jan 12, p 47; 19, p 41; Feb 9, p 37, 42; Apr 6, p 39
 Wiseman, H. C., Address of, Mar 2, p 45
 Wittgenstein, Karl, The development of industry in America, Mar 30, p 6
 Wood, Seasoning by electricity, Feb 23, p 7
 Wood, W. D., Death of, Jan 12, p 14*
 Wood pulley consolidation, Mar 30, p 33
 Wood trimmers, Oliver, June 29, p 13*
 Woodward & Hudson speed indicator, Jan 12, p 13*
 Working overtime, Jan 19, p 16; Feb 2, p 25
 Wrenches:
 Billings' cam lever, Jan 5, p 51*
 Bindley automatic, Apr 20, p 57*
 Elgin adjustable, Jan 26, p 52*
 Model grip, Feb 9, p 50*
 Whiting improved, Apr 20, p 56*
 Wrightsville Hardware Company, Jan 26, p 49
 Wringer, Joyner's mop, Mar 2, p 56*
 Wrist machine, Little Giant, Mar 23, p 50*
 Y.
 Yoke, Rogers' new chain, May 11, p 45*
 York post radial drill, Mar 2, p 14*
 Z.
 Zinc industry, 1898, Feb 2, p 16
 Zinc miners of Kansas and Missouri, June 22, p 16

